

Worldradio

Year 22, Issue 8

February 1993 \$1.25

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- Center Moriches, NY — No such thing as a quarter-wave antenna
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Year 22, Issue 8

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Expedition to Saltee Islands, EU-103

DECLAN CRAIG, EI6FR

According to legend, as St. Patrick chased the Devil out of Ireland, the Devil, in a fit of temper, took a bite out of the Galtee mountains. As he fled across the sea a piece of the mountain fell from his mouth. A mile further out to sea and three miles from shore he spat the remainder into the water. The islands formed are The Saltees and are today perhaps the finest seabird sanctuaries in Europe. The islands have been, in the past, home to monks seeking solitude, and to a long-since departed fishing and farming community.

Since 1954 the Saltees have belonged to the Neale family, and the head of that family is known as the Prince of the Saltees. The control of the Saltees and the surrounding sea area is the right of the prince and his heirs or, in the event of no member of the family living, the island's government will be turned over to "The Absent Twelve" who can come from any country on earth but who must all be fishermen.

Visitors to the Saltees are welcome and all that is asked is that they leave the islands as they found them for future generations to enjoy. Visitors are escorted to the islands by Willy Bates who, over the course of 50 years, has ferried thousands to these beautiful islands.

During the course of our operation we were amazed at the number of operators who had visited the Saltees and who asked about Willy and his boat. To all of you, Willy sends his regards and hopes one day you will visit again.

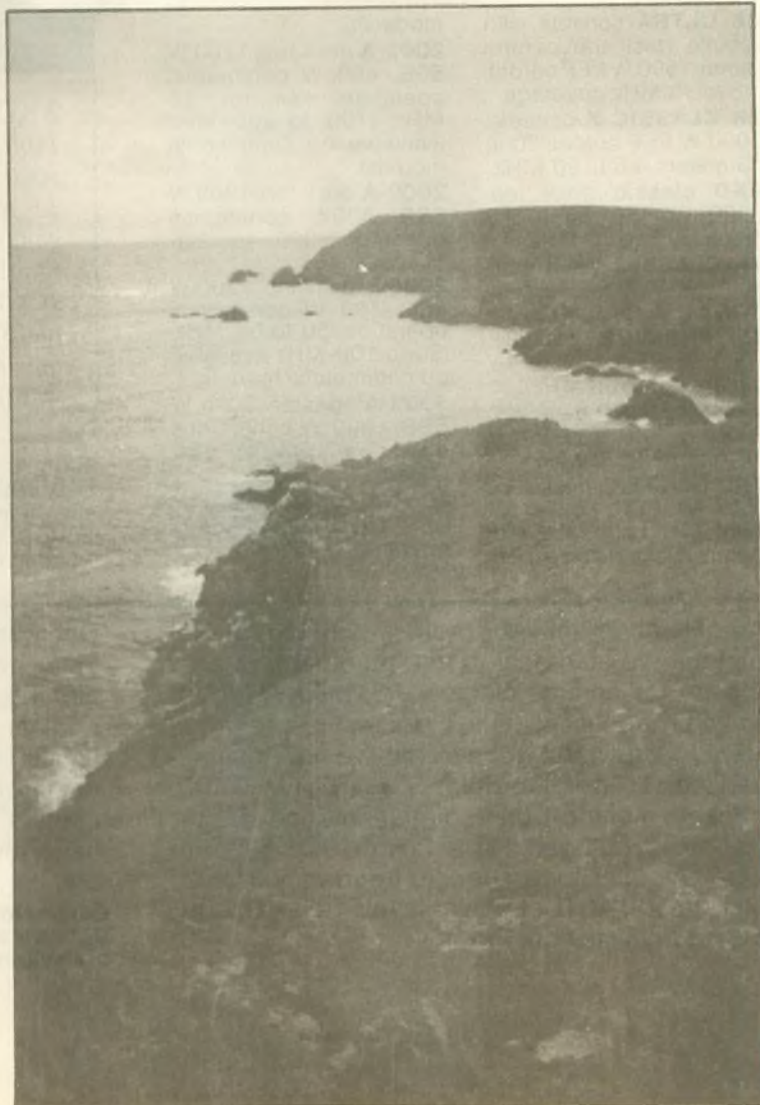
The Islandhoppers DX Group had in 1990 activated the Saltees for a couple of days. In 1991 the group was active from the Blasket Islands, EU-007. The group felt that there were still many island hunters, particularly stateside, who needed the Saltees, so we decided to return to EU-103 and try to provide the opportunity for as many as possible.

After some discussion, we decided to

operate from the island for four to five days in July. It was planned to operate on both CW and SSB with a particular effort on the WARC bands. We were very pleased when the Department of Communications issued us the special call EJØSI for our operation. With the help of Peter, EI8GM, the Prince of the

Saltees, Michael I, gave permission for our extended stay on the islands.

After some changes in the line-up, the final team would be EI2GX, Tony; EI3HA, Tony; EI5HF, Conor; EI6FR, Declan; EI7HF, Emmet; EI7DSB, Liam; and SWL (and generator doctor), *(please turn to page 24)*



The Islandhoppers DX Group's operating site provided a spectacular view to the west.

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models).

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2002-A desk top. 1200 W SSB, 400W continuous operation, 220 to 225 MHz.

2006-A desk top. 1200 W SSB, 400 W continuous operation, 50 to 54 MHz. (30 to 100 MHz available on commercial models).

3002-A console. 2000 W SSB, 1000 W continuous operation, 144 to 148 MHz.

3004-A console. 2000 W SSB, 1000 W continuous operation, 430 to 450 MHz.



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Amateurs making dreams come true

Amateurs everywhere are joining efforts to help save the life of one special Albanian Amateur Radio operator, ZA1B, Marengjen "Geni" Mema.

Stricken with an unusual renal (kidney) disease, Geni has arranged to receive medical treatment here in the US. Thanks to the efforts of Dr. Warren Hill, KF7AY, a Mesa, Arizona, ophthalmologist surgeon, and Dr. Vince Thompson, K5VT, oncologist, also of Arizona, crucial assistance was secured for Geni in the Phoenix medical community.

Having learned of Geni's situation, Martti Laine, OH2BH, immediately made contacts to amateurs in the US, Japan and Europe. Contributions are being accepted through the following contacts:

ZA1B, Project Goodwill USA
West Valley Amateur Radio Club

c/o Consulate of Finland
P.O. Box 1036
Sun City, AZ 85372-1036

ZA1B, Project Goodwill Europe
c/o Martti Laine, OH2BH
Nuottaniementie 10D20
02230 Espoo, Finland

ZA1B, Project Goodwill Japan
c/o Kan Mizoguchi, JA1BK
Sumitomo Suidobashi Bldg., 8F
7-8, Saragakucho 2 Chome
Chiyoda-Ku, Tokyo 101, Japan

Many remember Geni well, as he was instrumental in finally getting Albania on the air for the ZA1A debut last year. Only the ZA crew has a thorough understanding of the extent to which Geni applied his 20 years' knowledge of tele-

communications, his lifelong dream to bring ham radio to his country and his love for world literature—and therefore his mastery of the English language—all to the success of the ZA1A project. It was Geni who made the all-crucial transition from English to his fellow Albanians.

"Working over 20 years in telecommunications, ham radio has always been a nice dream for me, which fortunately came true last year," Geni says. "It was magic to call, 'This is ZA . . .,' and suddenly I was among friends from all over the world."

Now Geni's friends the world over have the opportunity to make such dreams a long-life reality for him. The amateur community can pull through in its best of traditions and give urgent assistance. —Frank Smith, AA7FM

Tech Bench Elmers Group

The Tech Bench Elmers Group in southern California was formed to encourage newcomers and old-timers in the more technical aspects of the hobby. The group has a net that meets on 147.210 (+) PL 156.7 (the PL is not currently turned on) every Sunday night at approximately 0430Z (8:30 p.m. local) immediately following the area's Tri-County Net.

All amateurs are welcome and there

are no dumb questions. The group discussion can range from how to get the whine out of your mobile signal to amplitude compandored SSB techniques. The group is a very loose organization with no officers, just hams coming together to promote a common interest. The following is a list of the projects and plans in the near future:

- Voice of America tour in Delano, California, and "Big Creek" power

generating plant tour. Tentative plans are for late April or early May.

- KTTV tour of their studios with possible picnic at the Mt. Wilson transmission site, to happen sometime in June.

- 2M mobile antenna "gain" test range at Cuddeback Dry Lake near Johannesburg. Bring your mobile antenna and find out the real poop on antenna gain—loosely scheduled for sometime in February.

- Base station antenna test range "if feasible" in late May or June.

- Power supply project—ongoing project to design and build a 30A multiple voltage power supply.

For current information please tune in to the net and say hello!

—Information submitted by
Janice Kreidel, KD6NPY.

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February 1993
Vol. 22, No. 8

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Our goal is to be a valuable resource of
ideas and experiences beneficial to the
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the flame of vitality to this avocation.

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Move over Socrates. Move over
Plato. Move over Solomon. Make room
for those with true wisdom. Here are
the latest to become *Worldradio* Super-
Boosters (lifetime subscribers):

Sandra J. Kimberly, KA1TLP, Walpole, NH
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Joseph Neuwirth, Bronx, NY
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Richard G. Whisler, WA6SLO, South San
Francisco, CA
Donald D. Benson, KD6LYJ, Antioch, CA
Tim Palange, KD4WZ, Kingston, WA

And, there's a correction to be noted in
our December issue's Super-Boosters:
The call for Laura Lee Tyler of
Sacramento, California, was incorrectly
listed as KD6GIP; it should have
been KD6JIP. Our apologies.

In the continuing saga of "Is RF bad
for you?" we present a letter from
(licensed in 1941) Chuck Haight,
N6NMM, of Stockton, California:

"Since 1946 I've been working
around some very high-power trans-
mitters on AM, HF shortwave and TV.

"The AM station, KSFO, was rather
wimpy at 5 kW. However, it shared a
building with two 100,000W output
Voice of America rigs. These monsters
ran 10,000V at 15 to 16 amps on the
final's plates. The antennas were
modified Sterba curtains with open-
wire feedlines. We used to light our
way around the antenna farm with
flourescent tubes. Lots of loose RF.

"The TV transmitters were 50 kW
units running 316,000W ERP.

"I'm 71, still working full time and
have nothing ill as a result of all this ex-

posure. Of course, I'm not mentioning
the second head or the rusty fist, they
don't count. My family of four sons
would indicate that that department
came through with flying colors too."

Nice letters and thank-you notes
from The Herndon (VA) Repeater
Group, Fox Cities (WI) ARC, Enid
(OK) Hamfest for the gifts we make to
clubs. It's always good to hear that the
largesse we happily disperse is
appreciated.

Joseph Mocker, Jr., W2CZP, of
Schenectady, New York, says, "I am
appalled by the filthy language on 75M
SSB. Is there any way to clean up this
garbage?"

It is hard to believe that some of the
strange characters on the bands actu-
ally have jobs and do useful work
during the day. Do they actually have
families?

Maybe the solution for the amateurs
who live nearby is to call the guy's wife
and ask if she could keep him off the
radio after he's been in the sauce.

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Vern Gallinger, W7JAT, Kingman,
Arizona, considers it a "sign of the
times" when licensed amateurs cannot
read the instruction manual well
enough to program their 2M radios and
opt to send them back to the factory to
have it done for them. He also wonders
why they don't just ask local amateurs
for assistance instead.

Those who delayed in ordering their
copy of the Sterba/Paddle book *Aerials*
had best quicken their pace because
there are but few copies remaining.

It has been stated by a negative
nabob that, because of the proliferation
of cellular phones and the like, there
would be no role in emergency commu-
nications for the amateurs. We have
in the past presented examples of why
such is not true.

Again, through the courtesy of
Floyd Luney, WA6HGH, who for-
warded an account from the *Independ-
ent Coast Observer* (Mendocino Coun-
ty, California) we present reality.

At 10:30 p.m. (17 November)
Gerhard Hanneman, WA1PCP, came
upon a rolled-over vehicle on Highway
1. His phone was able to reach only the
411 Pacific Bell information operators.

"After about 10 minutes of talking
to numerous 411 operators, they con-
tinued to refuse to call the CHP or Sea
Ranch security, claiming alternately
that it either was not their job or they
were not authorized to do so!"

Hanneman then turned to the An-
chor Bay repeater. The call from
Hanneman was relayed by Luney,
WA6HGH, and within a few minutes
The Sea Ranch Volunteer Fire Depart-
ment, Sea Ranch security, the Sheriff
and medics were on the scene.

As always, in the past and evermore,
Amateur Radio comes through.

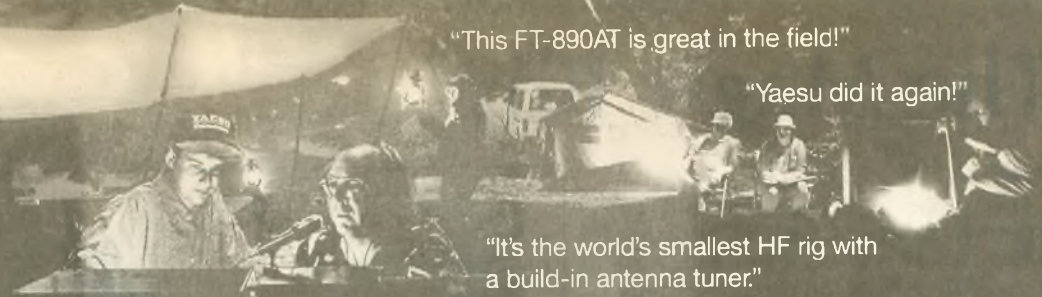
—Armond, N6WR

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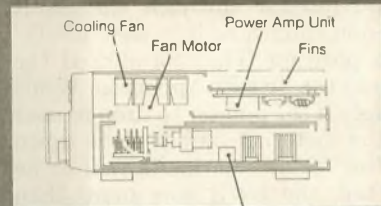
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The Magic Box

RON NOTT, K5YNR

Once upon a time a ham built an antenna. It was a vertical antenna, series fed. It was very tall and very beautiful. As he admired the new antenna he thought, "I'll be able to work the world with this thing."

Since he planned to work only a single band, he dug out his trusty SWR meter and set up to test the antenna. He fed a small amount of power from his transmitter through the SWR meter and calibrated it in the "FWD" switch position. Then he clicked the switch to the "REFL" position. While he expected the pointer to drop to near 1 on the meter, it barely came down from the "CAL" mark. As well as he could tell, the SWR was more than 15:1. "Heavens to Betsy," he thought, "This will never do. My transmitter requires a load SWR of 2:1 or less. Whatever will I do?"

Bemoaning his problem over coffee with some fellow hams the next day, he asked them if there was anything he could do to save his beautiful antenna. Immediately one of them replied, "You need to go see the radio wizard. He can surely solve your problem." Our ham was skeptical, but he knew of no other possibilities, so after coffee he headed for the QTH of the radio wizard.

After describing his dilemma to the wizard, the wizard pondered in deep thought for a few minutes and then said, "No problem." Immediately, he began to gather several pieces of test equipment and finally he picked up a mysterious box. Loading all this into his car he said, "Take me to your antenna."

Upon arrival at the antenna site, the wizard set up his RF impedance bridge along with its detector and an RF generator. After several minutes of impressive calibration and knob twisting, the wizard looked at the ham and said,



"Your antenna impedance is 700 ohms minus $j100$." Seeing a perplexed look on the face of the ham he then said, "The antenna has 700 ohms of resistance and a capacitive reactance of 100 ohms."

The ham moaned and said, "Besides having a terrible SWR, my antenna is also not resonant."

The wizard gave him a look of disgust and said, "That's easy to fix. We just put in a loading coil with 100 ohms of inductive reactance. The antenna input will then be resonant, but the resistance is still 700 ohms,

which will cause an SWR of 14:1."

Seeing another puzzled look on the face of the ham, the wizard then said, "The way I know that the SWR is 14:1 is to divide 700 by the output impedance of your transmitter and coax which is 50 ohms; 700 divided by 50 is 14, which is the SWR of the antenna once it is resonated by the loading coil."

The ham thought to himself, "This guy really is a radio wizard." "But I still have an SWR of 14:1. What do I do now?" bemoaned our ham.

"No problem," said the wizard. "Now we put the magic box to work."

The ham then asked, "But what is it going to do and where does it go?"

Pondering his response for a minute the wizard then began, "The magic box must do several things. First, it must allow the RF energy from your transmitter to flow through it to the antenna with very little loss. Second, it must transform your transmission line im-

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pedance of 50 ohms to the load impedance of 700 ohms. Finally, since a mismatched antenna reflects power or RF energy back toward the transmitter, the magic box must turn this energy around and send it back to the antenna. However, it's important that this turned around energy be in step with the energy going through the box from the transmitter. This means that this energy that was just reflected by the antenna mismatch must, after it is turned around, be in phase with the new energy from the transmitter that is going through the magic box for the first time. If they are in phase, then they add together to effectively become one signal to be radiated by the antenna."

Trying to absorb all this information the ham then asked, "But won't part of this combined energy then be reflected again by the antenna mismatch?"

"Good question," said the Wizard, "and the answer is yes, part of the combined energy will be reflected, but if the magic box and the antenna are made of low-loss components and materials, nearly all of the energy will eventually be radiated into space to form your radio signal. It's like the reflected power comes back to the box, but the box keeps turning it around and shoving it back out the door."

"This is really heavy stuff," said the ham, "but what does it mean to my transmitter? Won't the high SWR get back to it and overload it or something?"

"Absolutely not," said the wizard. "If we adjust the components in the magic box properly, your transmitter will see a pure resistance of 50 ohms. It will be completely happy and perform to its specifications."

"Wow, this is amazing. But the big boys tell me that a resonant antenna is more efficient than one that is non-resonant. Won't my antenna perform less well than one that is resonant at its input?"

The wizard shook his head sadly. "This is absolute baloney. What is important is *system resonance*. The magic box, when adjusted properly, takes care of this completely and the non-resonant antenna is now tuned to resonance by the conjugate match that has been produced by the action of the magic box."

The wizard then went to work with his RF impedance bridge and adjusted components in the magic box. When he was done, they connected the coax cable and transmitter to the input of the magic box and, just for grins, put the SWR meter in the line. The ham turned on the transmitter and calibrated the SWR meter. When he switched it to "REFL," the pointer dropped to 1. The transmitter loaded

perfectly and soon they were engaged in a QSO from which they got an excellent report.

"I thought it was completely hopeless, but it looks like your magic box has made my antenna an excellent performer. Just what is in there that does these wonderful things?" asked our ham.

"Some coils and some capacitors is all there is. But they must be the right values, adjusted properly and be quality, low-loss components," replied the wizard.

The ham then asked, "But that just sounds like a transmatch or antenna tuner. What's the big deal about that?"

"Aha," said the wizard, "It's the understanding, the proper application and the adjustment that is important. The whole thing must be viewed as a system, rather than just bits and pieces."

"Well, I really appreciate your help and I hate to complain, but you put the magic box out here at my antenna. It sure would be more convenient on a cold winter night if the box could be inside next to my rig," said the ham.

"Again, no problem," said the wizard. "All we need to do is conjugate matching through the transmission line."

"Oh, no," said the ham, "that sounds complicated and maybe involves some heavy math."

"It's really not that big a deal," said the wizard. "You do need to have a basic understanding of what happens to the two values of impedance, resistance and reactance, when seen through a length of transmission line."

Our ham asked, "You mean that what you see at one end of a piece of coax may not be what you see at the other end? How does that happen?"

"Well, it's a bit more than we need to go into today, but have you ever heard of the Smith chart?" asked the wizard.

"Yeah, the big boys tell me it's something terrible and I should avoid it by all means," said the ham.

The wizard replied, "It's not all that bad once you get into it, and it helps explain what happens to the antenna resistance and reactance through a length of line. But you should be aware that every increment of length of a transmission line changes the values of resistance and reactance unless the

load is a pure resistance equal in value to the impedance of the line. This is seldom the case in the real world.

"To simplify matters, we could connect the coax directly to your antenna and its ground system and then go in to your rig and, with the RF bridge, measure the complex impedance at the coax input as I did when I measured the antenna impedance. The magic box would then be adjusted to match to these values and your transmitter would still see a load of 50 ohms. To further simplify matters, you really don't need to use the RF bridge. Just hook up the magic box to the input of the coax, connect your transmitter into it and see if the box has enough adjustment range to get a good match. This can be done using your SWR meter placed between the transmitter and the magic box. If you can get a low SWR, then use it."

"But what about all the loss in the coax that the big boys tell me about? With the reflections back and forth between the antenna and the magic box, won't all my RF be wasted as heat in the line?" asked the ham.

"It depends on the frequency and the quality of your coax," said the wizard. "At HF and with good, low-loss cable you'll find that the system loss would (please turn to page 28)

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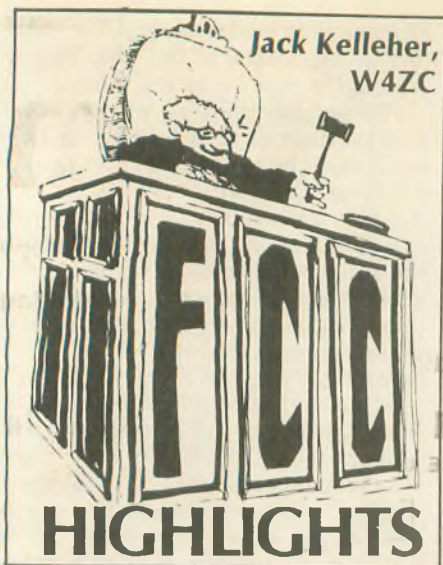
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Special call signs

Last month under the subtitle "Via the Back Door?" we mentioned three revisions to the Communications Act of 1934 (revised) which were mandated by the Telecommunications Authorization Act of 1992. One of these reads, "The Commission, for purposes of providing radio club and military recreational call signs, may utilize the voluntary, uncompensated and unreimbursed services of Amateur Radio organizations authorized by the Commission that have tax-exempt status under section 501(c)(3) of the Internal Revenue Code of 1986."

On 23 October 1992 a letter from the ARRL was hand-delivered to Private Radio Bureau Chief Ralph Haller, in which the ARRL requested that they be designated as the sole administrator of club and military recreation call signs. The League's plan is as follows:

Applicants (i.e., trustees duly authorized by the club to hold the license for a fixed term for the club, which is the licensee) would complete FCC form 610-B and mail it to the League for process-

ing. The League would review the application to determine the eligibility of the club, determine the proper call sign on a sequential basis from a dedicated block of call signs, such as WC#BAA through WC#ZZZ or similar, and prepare the form 660 with the call sign.

These would then be forwarded to the Commission's Gettysburg office for endorsement and mailing to the applicant. The League would also forward to the Commission a data file on each station in a Commission-specified format, with data concerning the licensee.

Renewal and modification applications would be handled in the same manner as new applications if the Commission so desires, except that club and military recreation station call signs already issued would be preserved if the club wishes to retain the call sign.

If the club wishes a new call sign from the dedicated block, it would be allowed to exchange call signs at the time of renewal or modification. Military recreation station call signs and applications would be handled in the same way as club station applications, and the call signs would be issued from the same block.

The original application and relevant records would be kept by the League for a reasonable time, should any question arise concerning a particular club or military recreation station; these records would be available as the Commission may direct, for enforcement purposes.

As to implementation, it is stated in

the letter, "This letter, if acceptable to you, will constitute a letter of intent, to be formalized at a later date into a final agreement, thus to allow the League to commit its resources and commence necessary preparation to become the exclusive club and military recreation call sign administrator." The letter of intent has not yet been agreed to by the Commission. (*W5YI Report*, 11/15/92)

Novice program and VEC

Our October column reported that on 13 July the FCC adopted a notice of proposed rulemaking looking toward consolidating two existing ham radio operator license testing programs into one. Both the ARRL-VEC and W5YI-VEC submitted reply comments in this proceeding supporting the need to bring the Novice program under the VEC system.

The League said that there is no statistical evidence to indicate that folding the Novice program into the VEC system would greatly reduce the number of available examination opportunities. They also emphasized that the proposal was not intended to address the integrity of Novice examiners, which was never in question.

W5YI-VEC stated that it appeared many commenters believe Novices would have to travel to existing VEC system test sessions—when in reality General Class examiners could establish VEC system test sessions of their own. W5YI-VEC also suggested that the General Class examiner be permit-

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of 1 December 1992.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg PA 17325-7245.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0KS	KG0BY	N0UPN	KB0KUW
1	AA1EM	KD1LK	N1NUA	KB1AMB
2	AA2LN	KF2LH	N2SXD	KB2PPA
3	AA3CK	KE3FN	N3NQE	KB3AKE
4	AC4XF	KQ4JF		KD4UHQ
5	AB5JD	KJ5GJ		KB5WCU
6	AB6PC	KN6DF		KD6PFZ
7	AA7SL	KI7IA		KB7QWZ
8	AA8JG	KF8XY	N8WEJ	KB8OKK
9	AA9FG	KF9MI	N9RLL	KB9IFW
North Mariana Is.	AH0Q	AH0AL	KH0AY	WH0AAT
Guam	NH2K	AH2CR	KH2GL	WH2AND
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AQ	WH4AAH
Hawaii		AH6ME	WH6JQ	WH6CQA
Kure Is.			KH7AA	
American Samoa	AH8G	AH8AE	KH8AI	WH8ABB
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska		AL7ON	WL7GN	WL7CGF
Virgin Is.	NP2U	KP2CA	NP2FZ	WP2AHU
Puerto Rico		KP4UL		WP4LOF

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ted to administer Technician Class examinations. Noting that 73 percent of all examinees now enter at the Technician level, W5YI-VEC states that there can be no doubt that the Technician Class needs VEs more than the Novice level does. (W5YI Report 12/1/92)

Examination fees

The FCC announced on 30 October that, effective 1 January 1993, the maximum allowable reimbursement (testing) fee for an amateur license examination will be \$5.60. This amount is based on a 3 percent increase in the Department of Labor consumer price index between September 1991 and September 1992.

VEs and VECs may charge examinees for out-of-pocket expenses incurred in preparing, processing, administering or coordinating examinations for Technician, General, Advanced and Extra Class amateur operator licenses. The amount of any such reimbursement fee from any examinee for any one examination session, regardless of the number of elements administered, must not exceed the maximum allowable fee. Where the VEs and the VEC both desire reimbursement, they jointly decide upon a fair distribution of the fee. No fee is allowed to be charged for the Novice Class operator license examination. (W5YI Report 12/15/92)

German deregulation?

In our December column we excerpted an item from the W5YI Report of 1 October concerning proposed new regulations for German radio amateurs.

Further investigation by W5YI (see W5YI Report for 15 November) indicates that the intent of the proposed changes is not complete deregulation, but an attempt by the telecommunications regulatory agency to get their national ham association to accept some of the costs and workload involved in administering Amateur Radio in Germany.

Balance

We receive comments, occasionally, that we give too much publicity to the "bad actors" of Amateur Radio. We try not to overdo this aspect of the news—but deliberate and repeated violations of our largely self-imposed "code of ethics" are a different matter. Such behavior reflects unfavorably on all of us and creates the erroneous impression that we are not as self-policing as we claim to be.

When we run across an item which indicates that the offender is considered a pariah by his peers, and that eventually justice prevails, we publicize it as a deterrent to others who may be tempted to flout our rules.

So, we will continue to help publicize this kind of blatant disregard for our traditions and rules, in proper perspective, without pillorying those who unwittingly run afoul of the regulations.

License denied

The FCC's review board has affirmed a Private Radio Bureau decision to deny an Amateur Radio operator license to Richard A. Burton, ex-WB6JAC, of Harbor City California.

On 11 September 1981 the FCC revoked Burton's WB6JAC amateur station license and affirmed the suspension of his operator license because of his willful and repeated violations. Burton was later found in federal court on three separate occasions to have

transmitted in the Amateur Service without a Commission license. He was convicted on four counts of transmitting without a license and two counts of transmitting obscene language.


The obscene language conviction was later overturned on First Amendment grounds. His four-year sentence was reduced to six months confinement, to be followed by five years probation. The Burton sentence was later modified to include therapy when he was again found on the ham bands operating without a license.

In 1991 Burton applied to become an Amateur Radio licensee. The FCC designated the matter for a hearing to determine if he had the basic qualifications to become a Commission licensee and whether the grant of his application "would serve the public interest, convenience and necessity."

Burton was asked to respond within 30 days and when he did not, the FCC moved to dismiss the application by summary decision. Burton did finally respond, though two weeks after the deadline. By then the judge had already ruled for the FCC. Burton then appealed to the FCC's review board, saying that he was not given adequate time to answer.

The FCC review board has now ruled that the FCC has committed no errors and that Burton was afforded adequate time to respond to the notice of hearing. In a 12 November decision, the review board confirmed the administrative law judge's denial of Burton's application for an amateur station and operator license.

Burton's troubles are starting all over again. A couple of months ago, Burton was again indicted for making illegal Amateur Radio transmissions on 5 May, 20 May and 6 July 1992. He pleaded innocent and was ordered to return for trial on 10 November. The trial was postponed for two weeks, too late for W5YI's deadline. (W5YI Report, 12/1/92) WR



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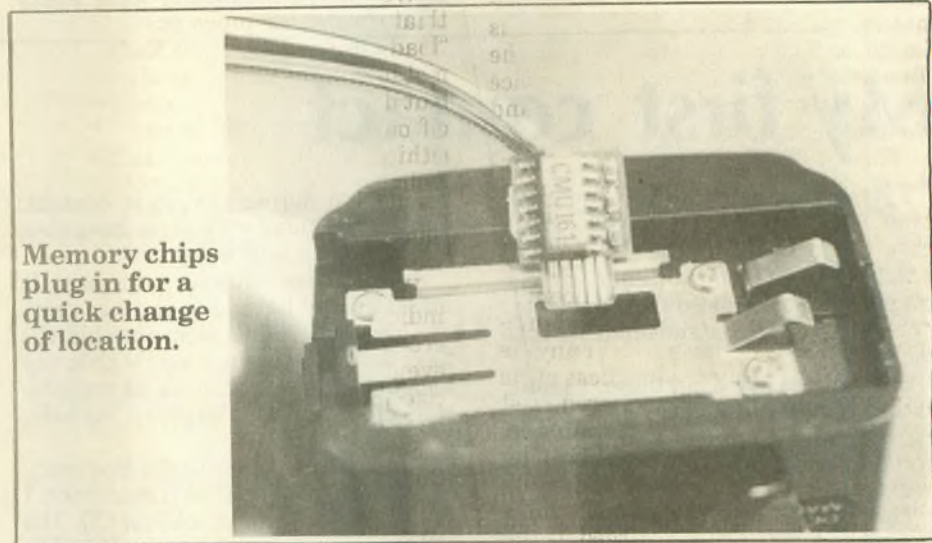
A non-volatile memory circuit is certainly nothing new. Scanner manufacturers have been doing this for years. The pre-programmed memory circuit requires absolutely no lithium battery backup to keep this circuit alive. It will not dump when you pull the plug!

Amateur Radio manufacturers are now offering EE-PROM capabilities to their new hand-held transceivers. But ham manufacturers have gone one step further than the programmable scanner—the EE-PROM memory circuit is imbedded on a tiny chip that may be plugged, and unplugged, into the Amateur Radio hand-held transceiver. Some already developed include the Kenwood TH-78ME-1 memory chip; Standard C168ACMU161 memory chip; Standard C-188A Fingertip memory chip; Alinco DJ180EJ-15U memory chip; and the ICOM IC-1A TriBand Internal chip unit.

New units may offer a 10, 20 or 40-channel chip installed. For approximately \$40, you may purchase a channel-upgrade chip that could hold 100, 150, or 200 channels. Each channel may contain receive frequency, transmit frequency plus offset, and sub-audible tone encode/decode information. Needless to say, that's a lot of memory that won't require battery backup.

The new thin Standard C-188A and

C-488A have taken a bold step that no other hand-held manufacturer has taken before—the little chip simply plugs into the back tail of the radio using your fingers. This means you don't need a set of operating room needle holders to



Memory chips plug in for a quick change of location.

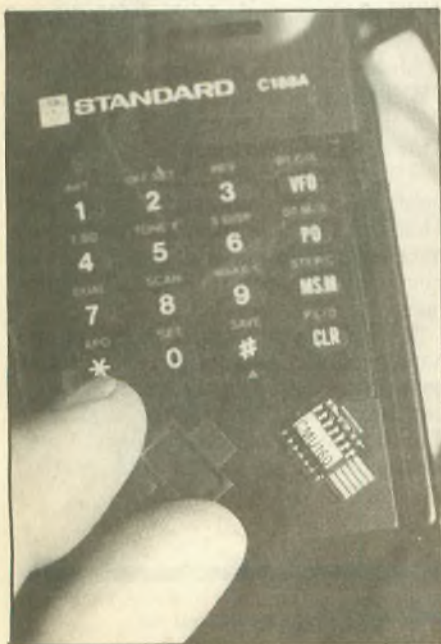
plug it in by the battery compartment. On the Kenwood and Alinco units, the entire hand-held needs to be opened up in order to get the tiny chip into position for a channel bank enlargement or channel bank change-out.

With fingertip memory chip capabilities, major 2M or 440 MHz channel changing is a five-second process. When I fly from Los Angeles to Chicago, I simply plug in my Chicago chip after I get out of the airplane. If I go up to Milwaukee, I plug in my Milwaukee chip of local simplex and popular repeater frequencies. When I fly from Chicago to New York, I plug in my downtown New York chip. And when I go by train from New York to the ARRL in Newington, Connecticut, I plug in my Northeast memory chip.

Another plan would be to purchase fingertip 200-channel chip sets, and have 200 channels for the East Coast, 200 channels for the Gulf, 200 channels

for the West Coast, and a 200-channel chip for Canada. Some chip sets also remember scanning lockouts, too!

You purchase your chip sets from your local authorized ham radio equipment dealer. Each chip arrives in a little tiny plastic bag, unprogrammed. Even when you buy that new hand-held with memory-chip capabilities, it, too, is unprogrammed, other than coming up initially on 146 MHz for 2M, or 446 MHz for the 70cm band.



The Standard chip simply plugs into the front, for 200 channels.

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Repeater directories, colorful plastic repeater maps, and big repeater map books allow you to punch in all of those frequencies known to be coordinated and active for a particular area of the country. It's a rather lengthy process, but once you have the individual chip set programmed, you may clone the same model radio with this information.

These chips might also be programmed, in a manner similar to cellular telephones, from a computer. The computer might contain an Amateur Radio database of active repeaters throughout the country by region. Are

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you beginning to see a major marketing breakthrough just over the horizon?

For the new ham, the dealer might now sell a 2M, 440, dual-band, or tri-band hand-held completely loaded up with all of the local repeater and simplex channels. The enterprising dealer might also have chip sets for other regions of the United States, too, hanging on the wall. It makes sense to me, but we have yet to see any manufacturer or dealer cash in on this technology that is truly "old hat" in the professional land-mobile market.

If you think about it, ham radio hand-held and mobile units have relatively dumb memory when you compare them to pre-programmed cellular telephones, VHF marine radios with pre-programmed ITU channels already installed, pre-programmed marine SSB transceivers with all ITU channels installed, and even your home TV that gives you VHF, UHF, and cable TV channels pre-programmed into specific memory slots.

In the age of turn-it-on-and-have-it-all-set-to-go-on-the-air, ham radio

hand-helds might very well benefit from the technology of pre-programmed chips with at least 20 or 30 memory channels electronically plugged in that cover the most popular repeater frequencies throughout the country. Ham radiosales personnel may not need to spend their valuable time educating the buyer how to program the rig, and for the first time in ham radio hand-held history, you'll turn your brand new rig on, and all of those local open repeaters will have been pre-memorized and set into non-volatile memory. WR

My first contact

I slowly reach for the key, my other hand ready on the TR switch. All I have to do is throw the TR switch, which connects the antenna to the transmitter, and push down on the key. Then I'll be on the air and able to talk to the world.

But I can't. My hand doesn't move, except to tremble slightly. It's not the rig, not the key. It's me! I can't find the nerve to do it; to send a signal to the world.

That's how it was for me when I tried to make my first contact by Amateur Radio. It had been weeks since I passed the Novice exam. Each day that passed without the arrival of my new ticket seemed endless. I knew that if that day would just end, the next would surely see the arrival of my license.

Days, weeks passed. Then a month had gone by. The station was there waiting for me, all the equipment in place and ready for operation. If only the license would arrive.

Finally, after what seemed to be several years, it did arrive. Can you believe it? It arrived on my birthday. What a present! The letter carrier had hardly made it to the sidewalk before I was at the rig. I turned on the transmitter and receiver. Nothing!

What could be wrong? All the wires connected? Oh no! The power cords were just hanging there. I'd forgotten to plug them into the wall socket.

The few seconds it took for the receiver to warm up seemed like hours. Then I heard the sounds of radio. I was ready to enter the world of Amateur Radio, or so I thought.

After several minutes of total failure at my attempt to send CQ, I gave up. I needed help.

But where to get it? Of course, the instructor of my Novice training class. He could, and would, help me.

Next day I got in touch with him and explained my problem. Would he help me? Yes, he would be glad to stand

behind me during that first contact. But he was busy with something else, so I'd have to wait a day or so.

Another day without a contact. It might as well have been another year.

Although it didn't seem possible, the next day rolled around, and with it, my instructor. A few minutes of preparation and I was ready to give it my best, to sink or swim.

Tuning the receiver to the frequency of my crystal-controlled transmitter, I found another station calling CQ. His sending was slow and steady. It had to be for me to copy it. "Go ahead, give him a try," advised my instructor. "What have you got to lose?"

...CQ CQ CQ CQ. His call seemed endless. Finally, he signed. ...CQ DE W3AOH K. I flipped the TR switch and reached confidently for my key. W3AOH DE WN2VDN AR.

"That was a pretty short call you gave him. You should have sent your call sign more than once. He may have missed it."

But he didn't. There it was, slow and steady. WN2VDN DE W3AOH BT TNX CALL BT UR. . .

"He answered my call. I'd done it! I made a contact!"

"Shut up and copy the code," my instructor yelled at me. "He's still sending." Dahdi didit dahdidah dah dahdah dididah dahdahdah. . . "Dah-diddit." What on earth did that mean? I'd forgotten the code. Those strange sounds coming out of the speaker didn't make any sense at all. What was I going to do?

Fortunately, my instructor was copying it all. "He's just signed it over to you. Your turn now."

Again the TR switch and the key. This time there was no fear. The key was part of my hand, part of my mind, W3AOH DE WN2VDN. . . until, that is, after I sent my call. I didn't know his name, his location, anything. So I sent the only thing I could think of, "Thanks for coming back to me OM. You're my first contact. I'm a bit nervous."

Behind me the instructor was saying, "You should have sent him your name and location and his signal report." Too late, I was already signing it over to W3AOH.

Slow and steady came the reply. "Welcome aboard. Hope you enjoy Amateur Radio as much as I do. . . ." This time I had no trouble copying him.

After the contact was completed, I breathed a very large sigh of relief. But I had done it. I had actually "talked" to another person via Amateur Radio by means of Morse code. I was a bonafide ham.

My instructor asked if he should hang around a little longer, but I didn't hear him. I had already begun looking around for another CQ to answer. I didn't need his help any longer; I was an amateur! —Memorex ARC

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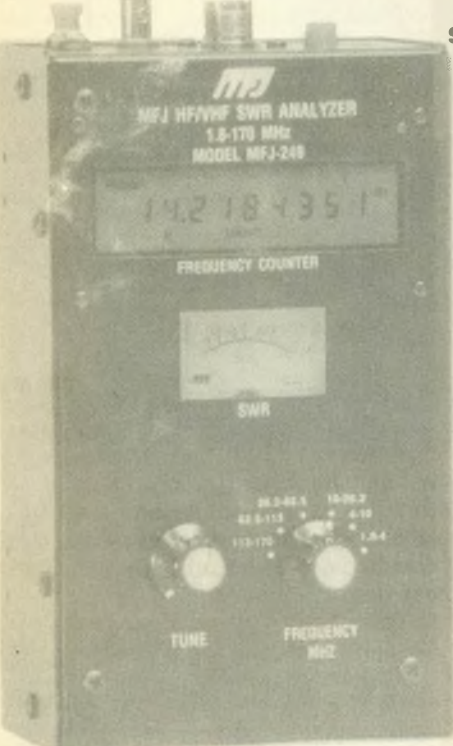
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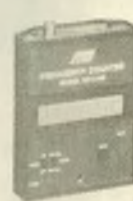
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An effective HF dipole

JOHN B. DILLON, KH6FMT

A number of years ago I read an article in *73* magazine about a dipole antenna which took my interest. I regret that, due to Hurricane Iniki and other events, I have lost the reference and *73* magazine is unable to provide the name of the author, title or date of publication. I trust that the author will read this and acknowledgement will be possible. I have not seen the antenna referred to elsewhere. My reason for submitting it here is because I would like Kurt N. Sutba or his lady to comment, if possible, and to give this very simple and effective feed system more publicity, as I have found it most effective.

To paraphrase a well-known author, "A dipole is a dipole is a dipole," and there are no secrets. It can be resonated to a frequency or not. This dipole is not made resonant and is fed

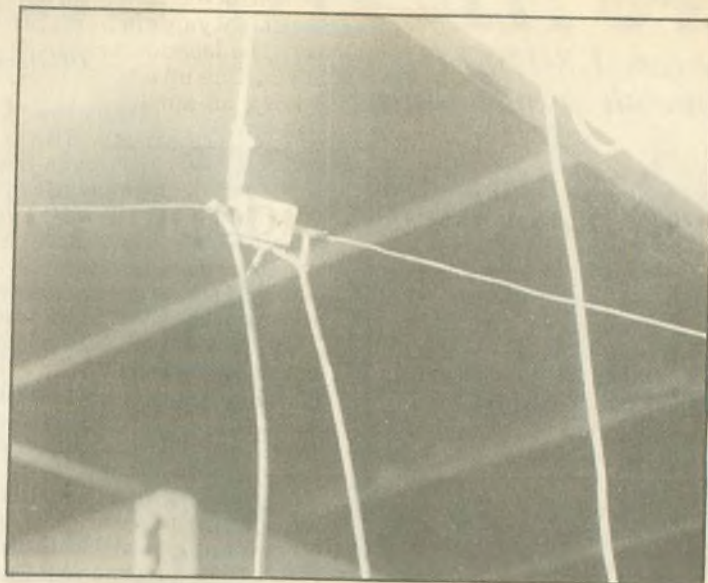


Figure 2. Condition of dipole feed the day after Hurricane Iniki. The center insulator is a piece of Corion. The dipole hangs from the second story roof. Coax is RG8X. Some 60 feet of coaxial line are in a tangle in six inches of water on the roof below.

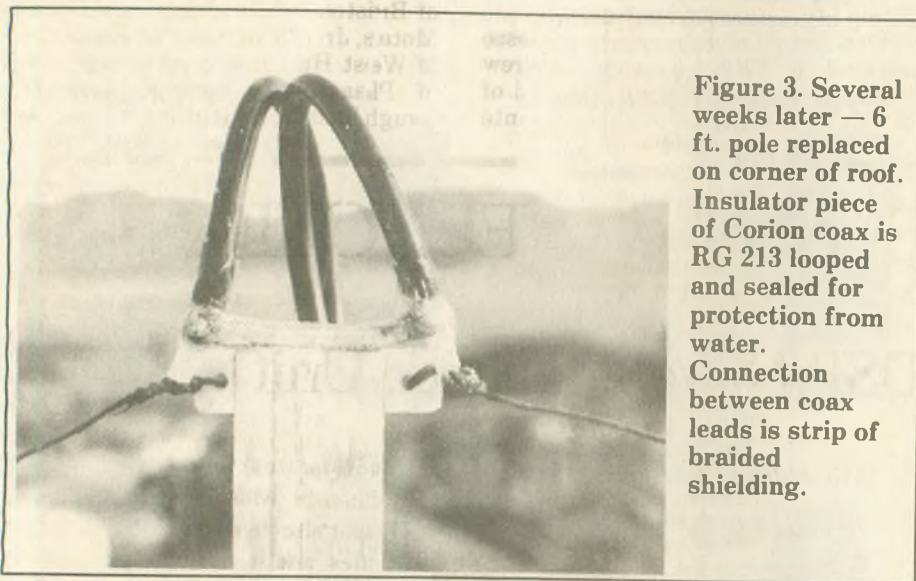


Figure 3. Several weeks later — 6 ft. pole replaced on corner of roof. Insulator piece of Corion coax is RG 213 looped and sealed for protection from water. Connection between coax leads is strip of braided shielding.

by equal lengths of coaxial cable to an antenna tuner having a balanced input (Fig. 1). It therefore cannot be used with transceivers with a built-in antenna tuner. My particular dipole uses 65 feet of antenna each side of the center insulator and therefore can be tuned to any frequency above 40M. I am using an MFJ Versa Tuner V and am able to show no reflected power at any chosen frequency between 40M and 10M.

The only restrictions are that the coaxial cables must be more than a quarter-wave of the lowest frequency and that they must be equal in length. There is no restriction as to how or where the cables go. Although mine were generally parallel, after the hur-

ricane they were lying in a disorganized mess in six inches of water. The 6 ft. pole at the corner of the second story roof which supported the dipole was broken off and the whole center part was a jumble on the roof of the first story.

The morning after the hurricane I went up on the roof and connected things the best I could. The coaxial cable I had used was RG8X and several years old. I had to make an emergency splice of the shields which was a very poor solder joint (Fig. 2). Nevertheless, when I tuned it up on 20M I was able to secure full output as indicated on the antenna coupler meter with no reflection, and I was able to establish communications with the mainland almost immediately with good enough strength, using 100W, for phone patches.

My transceiver was at first a Ten-Tec Paragon, and when it succumbed due to moisture, I used a Kenwood TS430S. For the first month these were powered by a heavy gel-cell battery and a regular storage battery as standby, both charged by solar power. I have used either transceiver and the dipole since to keep regular schedules, since I have not had the time or inclination to put up another beam. Lately the coaxial connections at the center of the dipole have been sanitized and the new coax is RG 213 (Fig. 3) but it works no better. The beam destroyed by the hurricane was a KLM 10-30 Log Periodic which I put up following the hurricane of 1982 and which served me well for 10 years. I am in the process of putting up a 15M monobander but will continue to

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use the dipole for all else.

I was, and am, truly amazed at how well the dipole works. Remember we are 2,500 miles from the mainland. I am 105 feet above sea level with an

unobstructed view in all directions and about 300 yards in from the ocean. I am sure the location helps. As I noted, I am putting up a 15M monobander and buying an amplifier, anticipating the

diminishing sunspot activity. The Log Periodic, which was an excellent antenna, was completely wrecked and is just too much of a hassle to install again; I am 10 years older. WR

Newington hams adopt Explorer Troop

Area Explorers in Newington, Connecticut, got a high-tech boost this month when the ARRL announced its sponsorship of Explorer Post 73. ARRL is a national organization of Amateur Radio operators. Explorers are the highest rank in the Boy Scouts of America. The co-educational group includes members in the 14 to 20-year-old age group.

"The League looks forward to being active in the scouting movement again," says Rolsaie White, educational activities manager for the ARRL. "In the past, scouting has been one of the traditional routes into Amateur Radio and other technical areas, and many who work here at the League look forward to renewing an old friendship."

White says the organization plans to help the Explorers with a variety of electronic projects, and possibly develop classes leading toward Amateur



The ARRL plans a series of Amateur Radio related activities in its sponsorship of Explorer Post 73.

Radio licenses for them.

The post roster includes Jesse Marsan, James Motes and Andrew Motes of Plainville, Marc Petruzzi of South Windsor and Monique LaPointe

of Bristol. Adult advisors are Charles Motes, Jr. of Plainville, Leslie Andrew of West Hartford, Susan Fredrickson of Pleasant Valley and Jack McLaughlin of Southington. WR

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Molokai with QRP

BOB SPIDELL, W6SKQ

Molokai Island is located between Maui and Oahu in the Hawaiian chain, and our vacation site was located on the southeast side. The tallest seacliffs in the world are on the north side of the island and rise from the surface of the ocean to above 3,000 feet. Interior mountains rise above 4,500 feet with one mountain range in back of our vacation site beginning only one mile or so from the base. As far as DX is concerned, I figured no contacts with Japan or Russia because of this physical obstacle.

Arrival time at our cottage was during mid-afternoon and, once settled in, the natural thing to do first was to take a dip in the ocean which was only 50 feet or so from our cottage. It was so refreshing that it lasted a few hours, as we strolled the beach afterwards... no antenna hanging the first day.

Our site was a coconut grove with most trees rising well above 50 ft., and they swung feverishly in the strong trade winds. Luckily, on one side of the cottage was a clearing which ran north and south and after quick measurements I had an open area of about 120 ft. How lucky can one get—out came my already built 135 ft. center-fed Zepp plus 100 feet of 300-ohm feeder. Quickly I took off 12 feet from each end, went down to the beach and picked up different weights of coral rock and tied nylon fishing line to the one that felt good enough for me to get over 50 feet.

Well folks, it took over an hour to get one end up. The tree on the other end was not coconut and did not sway, and that one was bagged in about five minutes. Up she went, supported by 275 lb. test nylon twine while a typical morning downpour came and went.

The first band to check out was 10M. Even Hawaii is plagued with QRM from illegal SSB operations below 28,000 to approximately 28,045 MHz. Very few CW signals were coming through so I quickly went up to 28.350 and above and worked a couple of stations in Washington. One gave me a 5 x 3 and the other a 5 x 4.

Then on to bigger and better things—15M CW. My first mainland QSO was with W6DDB in Lancaster, California, my home QTH. Bill had been "waiting for me" on 21.060. After an hour or so, I QSYed to 20M and stayed there for about four hours.

It took about two to three days to get the hang of how the band conditions evolved on a day-to-day basis so that I could plan on other activities during



Bob Sidell, W6SKQ, spent his vacation running QRP from Molokai.

my vacation. From 8 a.m. to 12 noon or so there was virtually not much sense to be on the air, so I spent my morning

hours snorkeling, swimming and walking. Even tried my hand at learning how to stay on a surfboard—tummy to board. I thought I would have had that snagged in a couple of days, but a local told me more like two months; it's all in the balance. I went squid hunting about three times also—no wonder I was told to bring some worn out trousers and old sneakers—they're for the coral.

Daytime operation on 40M was zilch as well as 80M CW or SSB day or night. When 2M came into its own the local interisland CW net just plain folded. The only HF interisland activity is the daily 40M SSB Friendly Hawaiian Net which is on at 9 a.m. and 4 p.m., and in which I joined 90 percent of the time I was around.

A quick rundown on what I worked is as follows: 15M—JA, LU, PY, ZL, HL, S21, 3D2, KH6, California, Texas, Louisiana, Mississippi, Ohio, Michigan, Virginia, Oregon, Washington, Wisconsin; 20M—LU, UZ, FK, VK, FO, ZL, VE7, 7P8, KL7, JA, CE, 3D2, KH6, Oregon, Washington, Wisconsin, California, Texas, New York; 40M—YN, FW, KH6, California, Colorado; 80M—ZL1MH (QRP).

ZL1MH runs 4W output to a full-wavelength on 160M. QRP to QRP contacts totaled 14. Not bad for 2W output into my simple antenna. 20M daytime listening early in the morning to around noon produced what I would call polar flutter. I knew there were stations in there but it was hard to tell who they were.

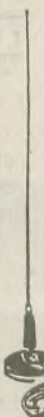
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Nominations are requested for Amateur of the Year, Special Achievement and Technical Excellence awards. Refer to the Hamvention Program for nomination form or contact Hamvention Awards Chairman, Box 964, Dayton, OH 45401-0964.

1993 Deadlines

Award Nominations: March 1
 Advance Registration and Banquet:
 USA - April 2 Canada - March 26
 Flea Market Space: February 1

Flea Market

Flea Market Tickets (valid all 3 days) will be sold IN ADVANCE ONLY. No spaces sold at gate. A maximum of 3 spaces per person (non-transferable). Electricity is now available in a portion of the last Flea Market row for \$40 additional per space. Rental tables and chairs are not available in the Flea Market. Vendors **MUST** order an admission ticket when ordering Flea Market spaces. Please send a separate check for Flea Market space(s) and admission ticket(s). Spaces will be allocated by the Hamvention committee from all orders received by February 1. Please use 1st class mail *only*.

Notification of Flea Market space assignment will be mailed by March 15, 1993. Checks will not be deposited until after the selection process is complete.

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The first hop from KH6 to any point on the compass is roughly 1,500 to 2,000 miles, and there are no stations anywhere within this boundary. So, I was hearing other signals that were being received from a further distance, though not loud enough to make them discernable, more than likely from Europe. I never did hear much in the way of New England, New York and New Jersey, the southeast or the midwest, to speak of.

It appears that the configuration of having the antenna running north and south produced good lobes for directions to the southwest and southeast, as the signal reports were strong into those areas when the bands were open. The effective mean height of the feed-point was about 35 feet above ground. I was on the second floor and did not run a ground bus.

My memorable QSOs were with JA7SSB, with a half-hour actual rag-

chew, as I usually work him in contests only; getting into two pileups and working 7P8 and S21; working ZL1MH QRP on 80M; and, last but not least, working VK3IM/M while he sent CW at over 20 wpm while driving near Melbourne. That QSO lasted almost an hour, hard to believe.

Again, contacts may QSL direct (45020 N. Camolin Ave., Lancaster, CA 93534) or through the bureau. Look for me in '93 on Molokai! WR

A mast that works

TRIP NEISLER KC4KLS

The date 22 September 1989 is etched into my memory. It's a day I'll never forget—and neither will millions of others who live in the southeastern United States, especially those in the Piedmont and coastal areas of South and North Carolina—because that was the day hurricane Hugo came ashore at Charleston, South Carolina, after agonizingly pausing over the warm Atlantic, rebuilding strength lost during its terrible Caribbean passage. Hugo wrecked Charleston and then stomped inland, knocking down everything that was weak as well as plenty of things that weren't.

I have no trouble remembering the exact time Hugo visited my small town near Charlotte, North Carolina. It was 0350 EDT, 10 'til four in the morning, when the power went out. So every time I glanced at an electric clock for the next few days, that was the time displayed.

Hugo was still classified as a hurricane when it passed through here, more than two hundred miles from the coast, packing winds of 88 miles per hour. My old-fashioned garage doors, secured with a hasp and padlock, somehow opened to swing wildly in the wind and rain. Taking advantage of a brief lull in the storm I examined the hasp—its screws had pulled out. Throughout the area huge old oaks and other trees fell, knocking down utility poles and power lines. Shingles, roofs, garbage cans and even metal outbuildings blew away. Verticals, dipoles, longwires and normally sturdy towers with well-mounted antennas tumbled down.

I was lucky. My house wasn't damaged and the three lonely trees at the back of my lot must have been a little stronger than Hugo. Unbelievably, my two wire antennas, a G5RV-like 102 ft. ladderline-fed flattop and a 40M coax-fed inverted V, were still in place, their apexes and one end virtually undisturbed on their masts. The other end of both antennas, the end tied off in the trees, was a bit loose but not broken. A minute or two spent

taking up the slack and I was ready to listen in on the nets forming on 80, 40 and 20M, using a spare boat battery to power my Kenwood TS-140S.

At the height of the storm I'd watched in a state I can best describe as "wide open mouth" while my masts bent and swayed in the violent wind gusts. More than once I was certain the masts would break as they approached and perhaps passed a 45-degree angle, only to snap easily back.

I'll bet you're thinking, "What's all this about 45-degree angles and snapping back?" You may even have thought, "Huh? No mast I've ever heard of can do that!"

And until I discovered Edward M. Noll's book, *Easy-Up Antennas for Radio Listeners and Hams*, first edition published in 1988, I'd have had the same thoughts.

In his easy-to-read-and-understand book Mr. Noll suggests assembling lightweight masts from standard PVC drain pipe. The mast is nothing more than a 10 ft. section of 1½ inch ID PVC pipe telescoped and bolted into a 10 ft. section of 2 in. ID PVC pipe. This almost 20-foot-tall mast is then dropped over a standard steel fence post, or even a length of steel pipe driven securely into the ground.

A through-bolt can be used a couple of feet or so from the bottom of the mast to gain some more height by

preventing the mast from sliding all the way to the ground over the fence post. An eyebolt or two at the top will provide a means to raise and lower the antenna with a light line, plus a place to guy from if needed. One person can, with some difficulty, erect and lower one of these masts, making antenna work much easier, if not exactly a pleasure.

With a single guy for each mast, just to keep everything vertical, my antennas survived Hugo. The PVC pipe's ability to flex without permanently bending or breaking is astonishing. It nearly goes without saying that the cost of PVC pipe should be much less than that of many prefabricated metallic masts.

Mast ideas that work are only part of the handy information waiting to be found in *Easy-Up Antennas for Radio Listeners and Hams*. Mr. Noll's book is divided into sections for the SWL and the amateur. Beginning with basic antennas and their construction, the book moves on to verticals, dipoles and longwires, directional longwires and beams, VHF/UHF, and other antennas for the radio listener. Within those topics such subjects as center and end insulators, coax sealing, feedline types, and even mobile antennas are discussed. There is also a table of international antenna dimensions for radio listeners that will be a delight for those who would rather not exercise their calculators.

In the amateur section of the book the opening chapter is again concerned with basics, then moves on to antennas for the new Novice. Antennas for General and Advanced Class operators are presented in the next section, including antennas with multiband capability, zigzag antennas, V beams, rhombics, using tuners, and more. A section on VHF/UHF antennas is followed by another table of antenna dimensions, this time for the amateur bands.

If it's beginning to sound like I found lots to learn and use in Edward M. Noll's *Easy-Up Antennas for Radio Listeners and Hams*, you're right. A hurricane-resistant mast? Who'd ever have thought it possible? WR

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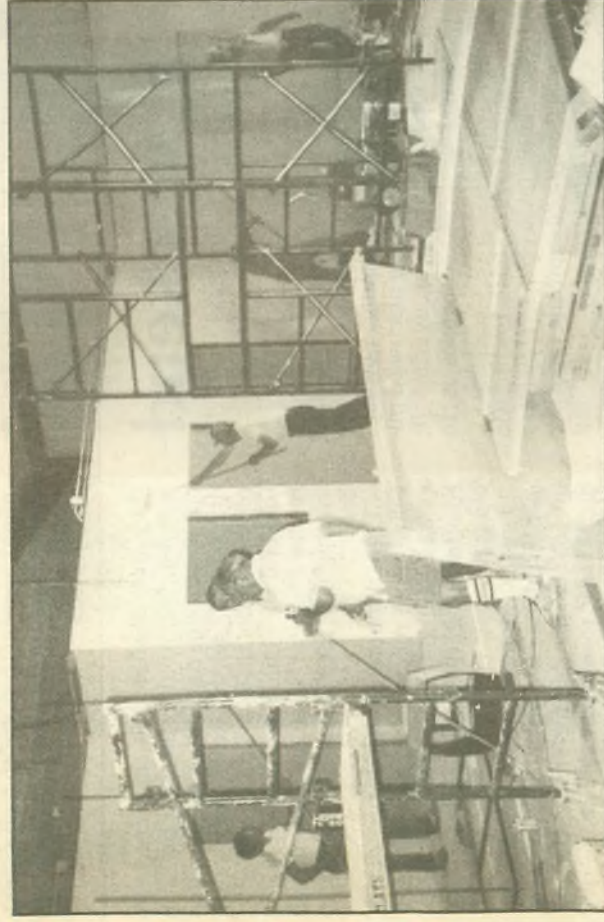
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PUBLIC SERVICE



Members of the Kimberling ARC volunteer their time to paint the interior of the new library.

Broader public service

JIM DAVIS, N9QG

The Kimberling Amateur Radio Club goes the extra mile when it comes to public service. The club is unique in that so many members are retired and we live in a retired community. Kimberling City is a small town of only 1,350 people nestled in the Ozark Mountains of southwest Missouri. It is a recreation area near Branson, Missouri, which is becoming well known throughout the US for its country music entertainment.

KARC was established in 1986 by eight charter members and now has a membership of 124, which includes a few non-voting and five honorary members. The club is involved in many activities which are not directly related to Amateur Radio. We work with the Merchants Association, thrift shop, senior center, Christian Associates, local library, Army Corps. of Engineers, health care center, chamber of commerce, telephone company, and Trees America.

The things we do are varied. Sometimes we are called upon to take an aging person to the doctor or hospital, pick up items for the thrift shop, repair some household appliance, paint the library, set up tables and chairs for meetings . . . the list goes on and on. We do find time, however, to have our emergency vehicle at various shopping centers for message handling and tell-

ing people about Amateur Radio.

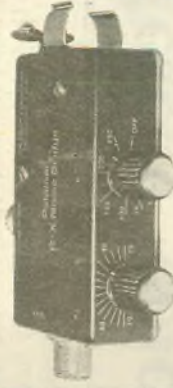
By getting involved in these many community activities, we have become well known and accepted by the community as a whole. We have been requested to speak to the Rotary Club, Realty Board, Shriner Club, Kimberling Club and Lions Club.

Our club room is furnished by the Kimberling Hills Country Club. We meet there once each month and they provide us with a first-class dining room for a buffet breakfast, after which we have our monthly VE exams in the same room.

Our membership is blessed by the fact that we have talent from all walks of life—teachers, computer specialists, IBM technicians and many willing hands ready to volunteer. We have a coordinator for these projects and all requests come through him and are dealt with in an orderly manner.

One might think that with all of this activity there would not be any time left for our real purpose. Not so, this seems to create more enthusiasm. We

R-X NOISE BRIDGE

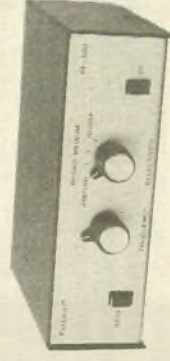


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or Technician in addition to our once-a-month test session. We are active in ARES and traffic handling. We publish a monthly club paper which we consider to be the "glue that holds the club together." We always work with the

"Boy Scout JOTA" and have had three special events.

If there is any suggestion that we might pass on to any club having trouble with attendance or interest, we would say *get involved*. WR

Rescue epics—a weekend to remember

DEBORAH RIEHL, KI7GC

Prologue:

Fourth of July weekend, 1992, was my weekend last year to act as base operations leader and stand by with the rescue truck. I was planning on picking up the rescue truck after an appointment in Seattle Friday afternoon, but my pager went off in the wee hours of the morning instead.

Saturday morning I had planned to take my next ham radio upgrade exam, so I crossed my fingers that any more missions would wait until the afternoon. No such luck. Once again in the wee hours the pager went off.

After some frantic telephoning my rescue friend, Bill Davis, KC7UW, took the truck and I went to my exam. It was successful beyond all my hopes. I was upgraded to Advanced Class and passed the 20 wpm Morse code test.

I drove from northern Seattle toward the Mountain Loop where the on-going mission was: At Boardman Lake, a nine-year-old girl had become lost on her first overnight hike when she went ahead of her father a mile from the parking lot. As I drove, I was sharing the good news of my successful exam with my ham friends when a wind-buffed voice broke in calling "Mayday!"

A party of four was lost on the Emmons Glacier of Mount Rainier in a sudden whiteout. The leader, Doug Saunders, a Mountain Rescue member, had his ham radio with him.

His party had been trying to find their way down for hours; they were cold and tired. They were between 13,000 and 13,500 feet. I suggested they return to the top and crawl into one of the steam vents that riddle the summit; or find a crevasse they could walk into for shelter; or tunnel into the

three feet of new snow that had already fallen. The leader said the snow was like "Wyoming powder"—too dry to dig into. We discussed piling it up and then excavating it; mechanical disturbance causes it to set up.

He decided to head back toward the summit and investigate crevasses along the way. Meanwhile another ham, Don Hagedorn, N7OGT, had phoned the park. Then I suggested a control operator isolate the Bears (145.33) repeater that the Mount Rainier party was using to keep it open for further communications with them. The repeater he'd called on is linked all over the northwest and is very busy—that's why he'd used it.

I had pulled off the freeway to give my attention to the radios and phone. The park contacted the lost party and began to get rescue teams in position for a break in the weather.

The party found a spacious, sheltered crevasse and constructed a shelter in it. They got their stove going. I drove on, listening, and pulled in to the Boardman Lake basecamp, tired from the events of the day.

At basecamp, things were winding down for the day. Soggy, tired, discouraged searchers were beginning to return. My rescue friend checked people in and saw to the warming of a few who were chilled while I continued to monitor Rainier.

At 5 p.m. the leader relayed that

they were sheltered in their crevasse, warmer, and would wait for a break in the weather to descend. They had lots of food and fuel. He was going to turn off his radio to save his batteries. I told him we would keep the search and rescue repeater open and monitored overnight in case he needed to talk to us.

The Snohomish County sheriff asked us to return to Boardman Lake at 7 a.m. Sunday morning for a renewed effort to find the missing nine-year-old girl.

I rushed home to get as much sleep as possible. At 4 a.m. on Sunday I got up to look for gas for the truck, and drove back to Boardman Lake. There was no news yet from Rainier.

I went into the field to take the place of a searcher who had sprained his ankle. We sat in the helicopter for a long time waiting for a break in the weather, while other teams searched less technical terrain.

I thought about the little girl we were looking for. When her father reached the parking lot to find her missing, he searched frantically, then called the sheriff. Snohomish County Search and Rescue was in the field by 6:30 p.m. the day she disappeared. Her pack was found on a log near the trail, with a package of M&Ms next to it. On Saturday her cap was found down a ravine near her pack.

At 10:30 a.m. our break came and we lifted off. I commented, "While we're up here, we might as well look." So we scanned out the windows as we flew. In rain-swollen Boardman Creek I saw a chilling sight—a long-sleeved white sweatshirt snagged on a log, swaying in the current. I poked the crew chief and pointed. He thought it was "only foam."

Our LZ (landing zone) was quite spectacular. The aft end of the helicopter hung over the river, the rear end of the skids perched on a log, while the blades whirled over devils club. Our assignment was to walk back up the river, crossing several creeks, and search up the far side of the outlet stream from Boardman Lake.

The terrain contained Class 4 and 5 brush—our feet usually touched the ground but we welcomed slide alder and vine maple as a break from devils club and salmon berries.

It rained relentlessly. Everything was very slick. I took an 8 ft. fall from a mossy log but landed in nice soft

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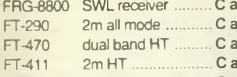
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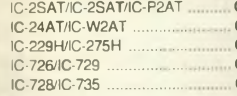
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mud. There was a ticklish crossing of a wet rock face, on the vegetation clinging to it.

We arrived at the outlet creek and turned up it through another small cliff band by way of a mud gully. We were scrambling up, thrashing and swearing, when I heard what sounded like an owl. I paused to listen, wondering what sort of owl would be out during the day.

The rescuer in front of me heard it, too. The sound came again—a distinct "Help!"

I shouted into the radio, "We have voice contact!"

The six of us set off toward the source of the voice as rapidly as we could. We slid down the last ledge and spotted a small pair of boots protruding from under a log. Bending down to peer underneath, we could see some saucer-sized eyes.

We dressed the little girl in dry pile clothes, covered her with a bivvy bag, and rigged a tarp over her log. I tucked heat packs down inside her clothes. We heated water and made hot chocolate and soup. She wolfed down granola bars and peanut butter cookies.

I took her temperature—95 degrees—not bad for two nights out in a short-sleeved shirt, shorts, and long-john bottoms. We tucked more hot water bottles next to her, and she fell asleep.

Her first question was, "Where's Brownie (her toy horse)?" The question was relayed to base and we were told Brownie was safe in her pack.

Her next request was to talk to her daddy. We held the radio up to her, and her mom and dad were put on the other end. An emotional reunion was held over the air and lots of eyes were moist for reasons other than the rain.

She told us she'd stopped to go to the bathroom and slipped down the ravine, hurting her hip. She was unable to go up, so she went down to the river. Her white cotton sweatshirt got wet, cold and heavy, so she dropped it in the creek.

As it got dark, she remembered what her daddy said to do if she got lost—stay put and take shelter. She spent two nights and a day under her log, emerging to eat berries and drink from the creek. She heard chain saws

and helicopters in the distance. When she heard us crashing and complaining nearby, she called out.

Two team members walked to the intersection of Broadman Creek and the outlet creek to scope out an LZ for evacuation. They had to fell a log across a channel of the river. They strung hand lines across that log and another log across the outlet creek. All creeks were running fast and deep due to the torrential rains. We carried her to the LZ. She was able to stand and walk at some of the dicier spots with someone walking fore and aft.

The helicopter flew her to the hospital, stopping on the way to pick up her mom. We were told to go back to the original LZ to be picked up.

After high-fives and elated whoops, we began to thrash our way back. We were soaked, our hands full of thorns, and it became harder and harder to get up after our numerous falls. We eventually stumbled back out onto the river bank, miraculously (no—it must have been navigational skill!) within 100 feet of the original LZ.

We put on all of our (wet) extra clothes and hunkered down to wait for the ceiling to lift enough for the helicopter to return. A cheering and

grateful call was made to us by the little girl's father, thanking us for finding her.

We passed the time dozing, eating, and watching the inch worms we'd acquired during our trip through the brush. We discussed the merits of bivouacking on the riverbank versus climbing up to the lake, should the helicopter not come back. Both choices were depressing.

Despite our pessimistic musings, the helicopter returned and lifted us out, two by two. The chow wagon drove to the helipad and we were stuffed with hot food and drink.

We were told how base camp erupted with joy with our first transmissions of contact, and again when we radioed the little girl was okay. I contacted my ham friends and was told the Rainier party was out and safe.

Expeditionary climbers and police officers alike were elated. This sort of mission is enough to keep a rescuer going for another decade.

Deborah Riehl, KI7GC/AE, is a member of Seattle Mountain Rescue's board of trustees. She lives in Bothell, WA.

—Pack and Paddle, August 1992

Hospital staff teams with ARES in SET

C.A. TURNER, WI6S

The Marcus J. Lawrence Hospital staff in Cottonwood, Arizona, is required to hold two emergency exercises per year, and they have begun working with the Verde Valley Amateur Association ARES group to enhance their communications during potential disasters.

On 28 October the VVARA responded to a call from the hospital regarding a simulated train wreck involving 17

victims. This particular exercise was held to examine the proficiency of the emergency entrance staff by jamming the entrance with numerous patients suffering from varying degrees of injuries.

A roll call of ARES members was conducted by Frank Funk, N7EBT, Area Emergency Coordinator, and the following amateurs responded: Cal Turner, WI6S; Glen Beeson, N7PNB; Howard Chambers, W7DC; George Hopping, NZ7I; Ted Anderson, N7SRA; Oliver Grieve, W7WGW; Bob Redmond, WB8SCB; and Fred Knuhtsen, KB7EYG.

In addition, seven club members acted as "victims:" Mary Turner, KA6RCM; Fern Beeson; Hank Thompson, KA7PLR; Paul Travis, W7EI; Warren Messenger, N7AJH; Jean Anderson, N7SLU; and Peggy Funk, N7DDR. Other victims were played by Mingus High School students drama class who put 10 people on the scene.

Hospital Safety Officer Fred Knuhtsen, KB7EYG, placed a 911 call to alert the ambulances. In eight minutes the ambulances arrived at the staging area. The on-site ambulance personnel examined victims and

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assigned each with a tag indicating the nature of the injury. At this point all three ambulances left the site to arrive at the emergency entrance simultaneously. The ARES radio team alerted the emergency entrance with information as to the estimated time of arrival

and the number and nature of the injured.

ARES members were also positioned at the hospital control center where doctors and nurses could be kept apprised of the status on incoming victims and provide rooms, stretchers and

doctors in accordance with the requirements.

The entire drill was completed in 52 minutes and the hospital staff have been enthusiastic about the cooperation between the Amateur Radio operators and the nurses. **WR**

IMRA and Project Saturn Global

The International Mission Radio Association (IMRA) has a new project, a weekly half-hour radio show called *IMRA Report*. It was developed at the request of Catherine Kahn, CEO of a California based organization which is producing a new worldwide educational endeavor called Project Saturn Global.

The IMRA was approached because of its standing as an international group working with missionaries overseas. In the programs, missionaries relate stories of their experiences in the countries where they worked.

On 7 October 1992 "The Saturn Awards," a special one-hour show, was aired introducing Project Saturn Global to the world. Award recipients were UNICEF, the Peace Corps, the Mercury astronauts and IMRA.

PSG is the world's first "all educational," 24-hour-a-day, internationally distributed satellite radio network. Its primary program, drawn from an audio library of over 2,000 tapes, is dedicated to education with emphasis for K-12 children. The library's broad scope of programs are of interest to adults as well. In addition, there is an hourly educational news feed which is supported by over 200 individual, in-country PSG news bureau partnerships.

PSG will use three satellites for its daily programming schedule, which will repeat every eight hours to accommodate global time zones. Its programs, in seven basic languages, will be reaching 200 countries around the world. Supplemental materials, books and tapes, will also be made available. The average daily audience is projected to be more than 100 million.

In the US, programming is offered gratis via satellite to public radio stations and to cable stations for audio channel distribution.

For other parts of the world where no cable system is in use, a different procedure will be used. The transmitted signal will be downlinked from a satellite to a satellite receiving dish. From there it will be delivered either by telephone for free access listening, or by low-power radio to the neighboring area, including schools and libraries. In remote areas where no

electricity is available, solar power will be used for the radio.

IMRA Report will first air sometime in October. In the early planning stages, Catherine thought that Fr. Mike could interview a missionary on the air and the QSO would later be rebroadcast. Fr. Mike pointed out that it would constitute business and so that idea was dropped. A second suggestion was made that a missionary send to the priest a tape cassette in which he/she detailed experiences. This was also eliminated because the tape would probably not be of sufficiently good quality.

Next there was a discussion that an attempt be made to use the professional facilities of St. John's University (NY) which has a \$2 million radio and TV studio. Permission for use of the studio and its personnel was granted by the university administration, provided that there would be no interference with regularly scheduled classes.

Easy mike plug change

HAL SCHWEIKART, WB3JDP

After receiving a newer Kenwood Transceiver, I had the problem of changing two mike plugs from four to eight-wire. After an exasperating amount of time trying to thread wires through those little holes in the plug and solder, I got one done and wasn't pleased with the result. I quit, gave a long thought on how to make this job easier and came up with a method.

I had DUX Seal (window putty), and

I positioned a mike plug on some putty to my left with connectors to my right. Then, after preparing the mike cable by cutting off used portions of wire, strip and tin, I positioned the cable on some putty on my right so that the correct lead was resting on the right conductor of the mike plug, (disregarding the little holes) and laid the wire on the groove of the connector.

I did all the soldering with one hand, while my other hand was free to reposition the plug and wire for each connection. **WR**



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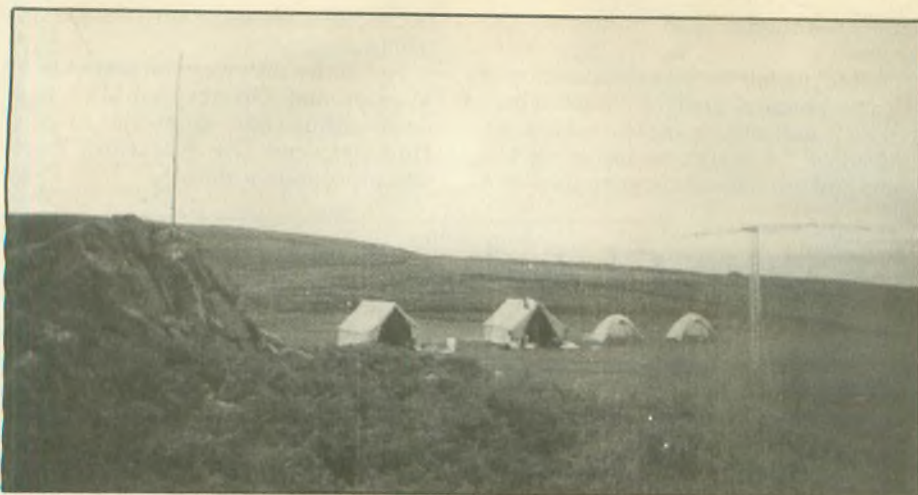
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The EJ0SI operating site was set up for serious operating.

Saltee Islands

(continued from page 1)

Alan. The dates for the operation were set for 9 to 14 July. The IARU HF Championships were set for this weekend; we decided not to take part in the contest but instead to concentrate our time to working island hunters. Advance publicity on the operation was made (special thanks to Brendan at *DX News-sheet*; Johnny, 11HYW; Joe, EA6MR; and the *International DX Bulletin* for their efforts on our behalf).

One of the difficulties encountered in an operation from the Saltees is that of getting the equipment onto the islands. The equipment and supplies must first be loaded onto a fishing boat, which makes the 45-minute trip to the islands. This boat anchors about 100 meters from shore, and all the equipment for the operation is offloaded into a small open boat which makes the trip to shore. Because no jetty exists and the boat can't quite make the beach, the DXpeditioner must get his feet wet and carry his gear to shore.

We had decided that the minimum requirement for the operation was two complete HF stations. In the end we were able to bring, from Kenwood, a TS440S, a TS140S and a TS130S; and from Yaesu, an FT747GX. Antennas brought to the island included a Mosley Classic Tribander, a HyGain 18VS vertical, dipoles for 80, 40, 30 and 17M and a half-wave grounded delta loop for 40M. With all the gear, plus generator, tents, food and clothing piled on the dock, the boat began to look decidedly smaller.

We were in luck with the weather—the threatened rain held off and after 45 minutes we anchored off the islands. The task of getting the equipment ashore began. The first boatload of gear went ashore and, as the tidal conditions were perfect, the team com-

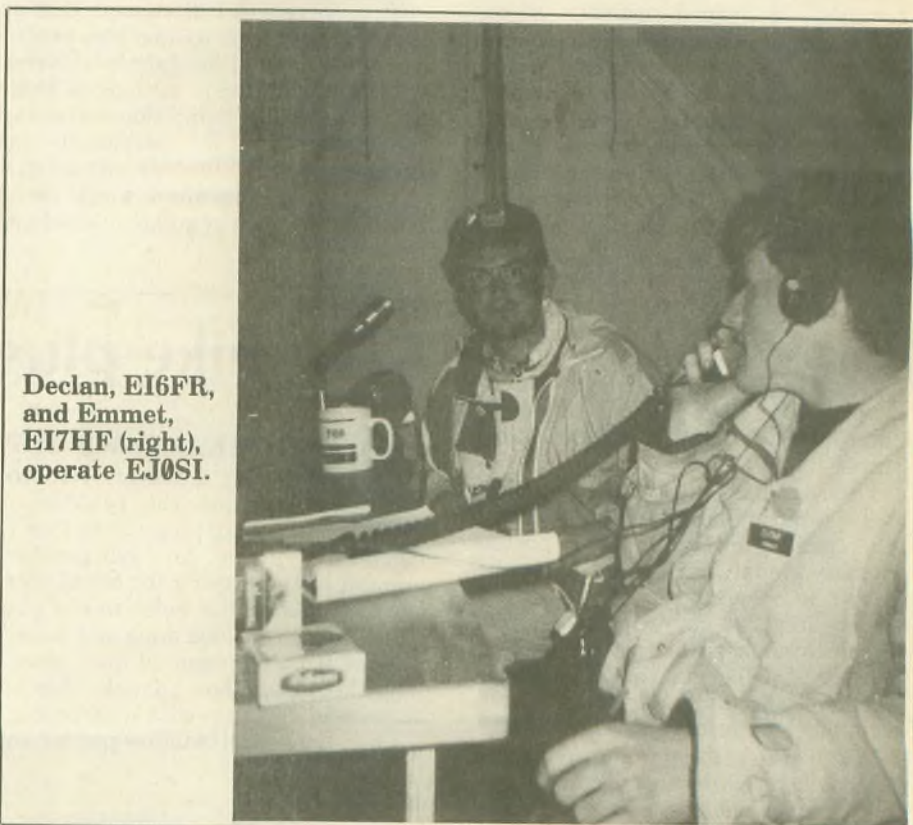
pleted the transfer without any loss or damage. The ops, however, had at this stage gotten their feet well and truly wet and had picked up a bruise or two from the struggle over seaweed-covered rocks.

After a short inspection of the island we decided to set up the stations on one

of the high points, and our sleeping quarters were to be in the loft of a small building kept open on the island for visitors in the event of inclement weather. This was located close to the shore and well away from the operating site. A well beside this building provided our drinking water.

Inside the building we discovered a racing pigeon who had made it and the island its home. Percy, as we named him, quickly became the team mascot and joined us for meals, and each evening made his bed in our quarters. If anybody has lost a rather fat and lazy racing pigeon with a poor sense of direction and the tag number GB-91-B31730, we can report he's alive and living well on the Great Saltee Island.

At the island's summit, set into an outcrop of rock, is the throne of the prince of the Saltees, and to the front of this is an open grassy area with a large flagpole, a convenient antenna support. We established our operating site at this location. The generator was positioned behind the rock outcrop, so that on this occasion the "power



Declan, EI6FR, and Emmet, EI7HF (right), operate EJ0SI.

DX Desperation?

I was back in the States from Borneo, going nuts in a tiny apartment. I bought a 20 meter HalfSquare, pulled it across the kitchen, down the hall and through the living room. The legs dropped to the floor and folded sideways. Crazy? I got out. I've been working DX with HalfSquares ever since—without telling the neighbors.

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behind the throne" was a 3kVa genny. The team split into two working parties, one setting up the operating tent and field kitchen, while the other put the antennas in place.

First up was the Hy-Gain 18VS vertical. Then the flagpole was climbed and the inverted Vs for 80, 40 and 30M were put in place. A 20 ft. aluminum



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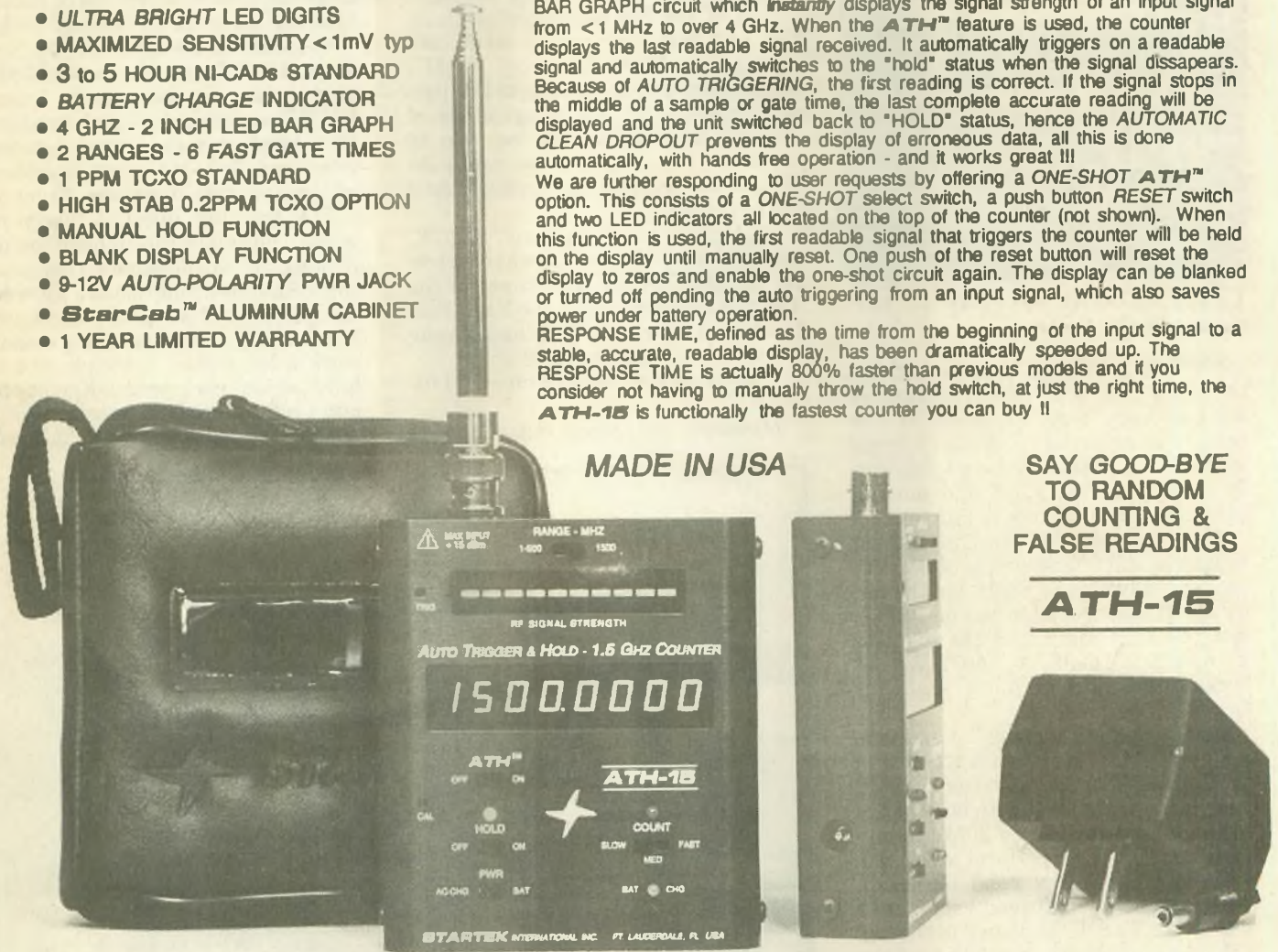
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Tony, EI2GX, ascends to the throne of the Saltees.

ladder was set upright and the Mosley tribander fixed to it. This arrangement worked very well; rotation of the beam was achieved by the armstrong method (Hi), team members temporarily unclipping the stays and moving ladder and beam before re-staying.

After several hours' work in brilliant sunshine, and after a couple of beers to cool off, EJ0SI was ready for the airwaves. Initial operation was on 14.260, and the first station in the log was EA6ABN at 1600Z. At 1603Z W3KH became the first of many stateside QSOs.

Our second station was up and running on 40M at 1800Z with EI8GM in the log, and shortly thereafter G3XYP gave us our first QSO with our friends in G-land. Meanwhile on 20M the vertical continued to perform well with 5Z4BP reporting a good signal in Africa; this was confirmed a short time later when TL8NG appeared in the log. CW operation began at 1630Z with the first 5NN going to HA5DA.

We took a break for the first of many fine meals prepared by the DXpedition's chef, Tony, EI3HA. Shortly afterward we resumed operation and with two stations on the air it was a pleasure to see the logs filling with the calls of many old and new friends. It was great to hear from Johnny, I1HYW, at 1725Z and, during the hours that followed, F9RM, VE7IG, N7BZI, CT4NH and many more of the IOTA gang. Operation was mainly concentrated around the IOTA frequencies but a couple of DX nets were also visited, and a particular thanks to the guys on 14.256, and to Selim,

OE6EEG, and the European DX Net for the warm welcome they gave our station.

The WARC bands received special attention and we were happy to provide a first QSO with EI for many stations on these bands. 30M in particular was an eye-opener. It produced very loud signals from stateside in the evenings, and our 100W and our vertical got many fine reports. It gave a few surprises, with VQ9 being worked in the midst of EUs and VK6HD beating out the stateside pileup to make the log.

One of the few disappointments of the trip was the lack of significant openings to Japan. However, 18 MHz did produce a short opening to this part of Asia, with JF3ASY being the first of our JA friends into the log. We all resolved to pay more attention to the WARC bands from our home stations in the future.

On Sunday morning Tony, EI2GX, opened up the station and was concerned to find that the auto-tuner in the TS440S refused to tune the Yagi. Was it water in the coax? No, it hadn't rained. Was it a badly fitted PL259?

"Certainly not!" cried Emmet, "I fitted it."

Moments later, from out of the rig

crawled a small orange and black caterpillar who, it seemed, had found the innards of an HF transceiver a cozy place to spend the night. After he vacated his temporary lodgings, the rig once more tuned and operated perfectly. This is not the sort of bug (Hi) we are used to discovering in our equipment. Perhaps manufacturers should introduce the creepy-crawly soak test in their routines!

We were to leave the island at approximately 11:00 a.m. on Monday morning, and so in the early hours of Monday we made our last QSOs from Great Saltee. Declan, EI6FR, closed down the CW operation with KQ3F on 40M being his last QSO. Emmet, EI7HF, kept the SSB station on the air for a couple more hours until, at 04:00 local time, VO1JCC went into the log as the last QSO of Saltees '92.

The morning brought heavy rain which continued throughout the day, making the job of removing our gear to the beach uncomfortable. However, the prospect of a hot meal and a cool beer waiting at Kilmore Quay made the work a lot easier. A couple of hours later seven very wet DXpeditioners and their equipment were aboard the boat and heading for home. At Kilmore




SWL Alan snaps a group to remember: (front) Liam, EI7DSB; Tony, EI3HA; Emmet, EI7HF; and (back) Conor, EI5HF; Tony, EI2GX; Declan, EI6FR.

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Quay the gear was quickly offloaded, and there was an anxious moment when one of the tents which had been borrowed from a scout troop teetered on the pier edge before being hauled to safety.

In the local hostelry, after a change of clothes, and with dinner ordered, we reviewed the operation. We had kept

two transceivers on the air at all times for 70 hours and had over 3,000 contacts in the SSB log, with a further 546 having been made by Declan, EI6FR, on CW. All continents had been worked and some fine DX contacts made, including QSOs with ZL and KH6 in the Pacific, TF and JW in the north, TL8 and 5Z4 in Africa and some rare islands such as PY0T. We were also very pleased to have worked a number of other IOTA expeditioners, and hoped they would enjoy their operation as much as we did ours.

Plans were laid for our next operation and we hope to meet many of our friends again from another island. All QSOs will be confirmed via the bureau but for those who wish to QSL direct, Declan, EI6FR, will act as QSL manager. Many thanks to all stations who took time to work us, see you from the next island! WR

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and the waters surrounding them are an absolute possession
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No man or assembly of men has any right whatsoever
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Amateur Radio on veteran ships

BOB SAINI, KC6IXM

The most powerful armada in recent years, led by the new nuclear powered, 31 knot, 280,000 HP carrier, *Abraham Lincoln*, sailed into the San Francisco Bay on 10 October. As she passed the Presidio she was saluted by the World War II Liberty ship SS *Jerimiah O'Brien*. The *O'Brien* is the oldest World War II Liberty ship still in operating condition, and since the original radio equipment doesn't meet FCC and Coast Guard standards, all communications are within the province of Amateur Radio operators.

Chief radio operator Bob Gisslow, KB6YYL, and Alex Newbold, W6MMG, held continuous watch on 7.230 on the hour and 14.310 on the

on 7.238, Wednesdays at 10 a.m. between the *O'Brien* and the *Lane Victory* in San Pedro, W6MMO. Both these WWII veterans have been invited by the governments of Great Britain and France to attend anniversary ceremonies at the Normandy beaches, commemorating the landings of 6 June 1944. The anniversary

celebration includes ships from the US Navy, the British Navy and the French Navy as well as individuals from other allied nations. The ceremonies will focus on 6 June 1944, the 50th anniversary.

The SS *Jerimiah O'Brien* is normally docked at Pier 3, Fort Mason, and is open daily for visitors. WR

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only a single coaxial cable to the transceiver. Our relays are available in one of two styles Wired or Wireless. The Wireless style uses a separate coupler module installed near the radio. The coupler combines the RF signal and the relay energizing voltage to allow the coaxial cable to carry both signals simultaneously yet independently. The remote relay has a built-in coupler that separates the RF signal from the energizing voltage permitting the relay to transfer its contacts when the energizing voltage is injected into the coupler. This permits existing systems to be expanded with little modification. For more information, call or write for Catalog #IN84.

KXCH

SS *Jerimiah O'Brien*

NATIONAL LIBERTY SHIP



MEMORIAL

half-hour. Local coverage on hand-held was on 147.105 by the Secundari brothers Dick, K6TR, and John, K6TW.

Contacts were made throughout the day from the two doublet antennas, and with the Coast Guard on Marine Channels 16 and 13. Since the *O'Brien* does not venture into international waters, inland rules prevail, and a licensed commercial operator is not needed.

A regular schedule has been set up

Magic Box

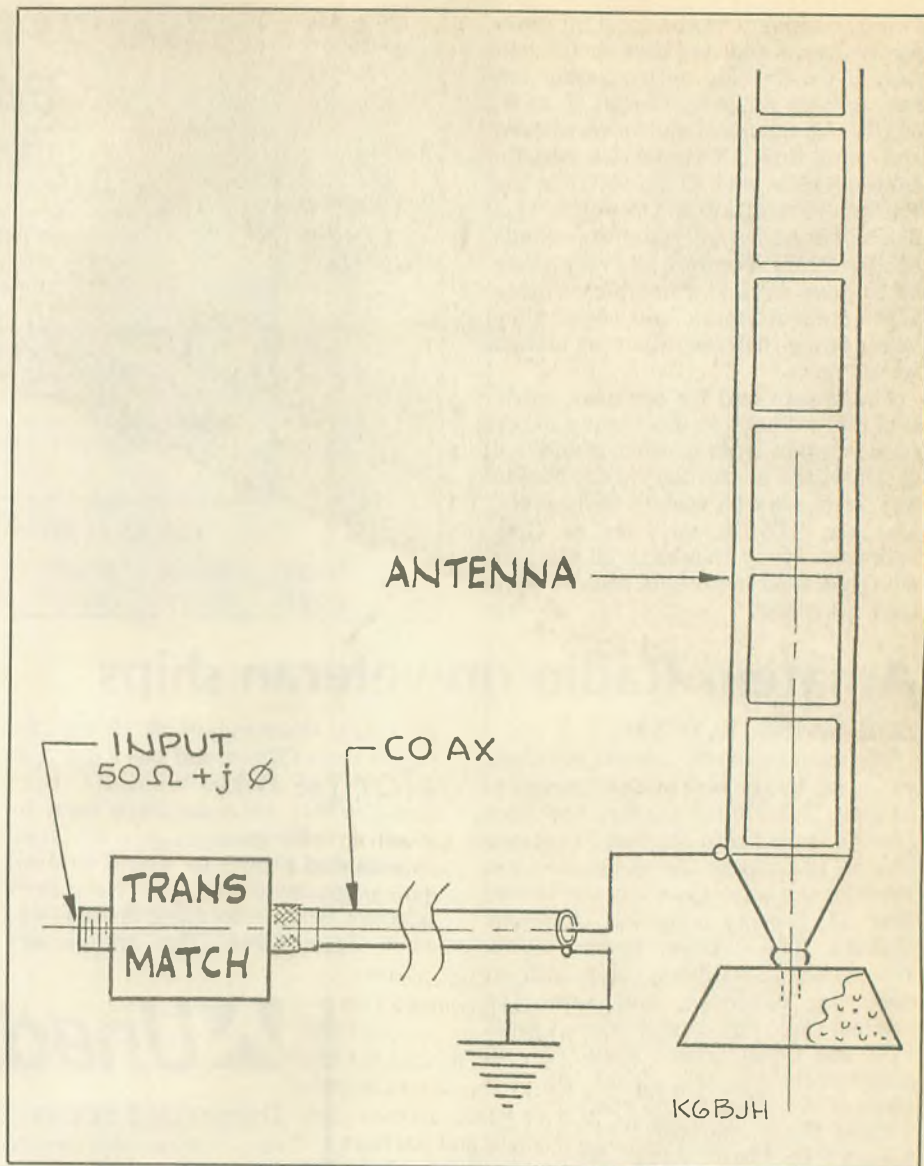
(continued from page 7)

be a small fraction of an S-unit on your receiver S-meter. Your RF system consists of the antenna, the transmission line and the magic box which, of course, is your transmatch. The transmatch tunes the entire antenna system to resonance as indicated by a very low SWR at your transmitter output. The overall quality of your RF system will then determine how well your station will perform."

"Well, I surely appreciate your help in making my antenna work. I thought I would have to cut it up for scrap. You surely are a radio wizard," stated our ham.

The wizard modestly replied, "No. I just spent some time learning about this stuff and trying to dispel the old wives' tales that have permeated ham radio. You can do the same thing if you want to. Just spend a little time with the books as well as your rig and you can do it too. Gotta go now. Good DX and lots of QSOs." WR

K5YNR credits Walt Maxwell's, W2DU, Reflections (specifically, chapter 7) as the reference for this article. The impedance values used are based on an actual experience K5YNR had with an AM radio station built over 20 years ago. The tower was 400 feet tall and the frequency was 1110 kHz; the measured impedance was startling at 700 ohms - j100. The tee network in the ATU handled the impedance match well after several hours with a slide rule and RF bridge. Though this was a broadcast antenna,



K5YNR reminds us, the principles still apply to amateur antennas, whether

ground-based verticals or elevated dipoles. WR

A ham's lament

(with apologies to Edgar Allan Poe)

Once upon an evening dreary,
While I pondered weak and weary
Over many a quaint and curious
Signal from some distant shore;
While I nodded, nearly napping,
Suddenly there came a tapping
There was someone fiercely rapping,
Rapping at my hamshack door.
Noise that irked me to the core.

"'Tis the XYL," I muttered
"Rapping at my hamshack door.
What the heck's she rapping for?"

Hesitating then no longer,
Shouting as my voice grew stronger,
"Hon," yelled I, "Please know that
You may walk right through the
door.

"Open up—no need for rapping,
I'm DXing while you're tapping;
Some ham jerk is out there
zapping
Signals like he's done before—
QRN—and much, much more."
Opened then the hamshack portal
And I saw an earthly mortal.
And I mean a quite large mortal,
Whom I'd never seen before.
" 'Tis the FCC," he sputtered.
"Holy jumpin' gee," I muttered,
Got so scared I almost stuttered.

I must say, he seemed quite sore,
Standing at my hamshack door.
"Well," said he, "I am quite bitter;
Signals from your ham transmitter
Cross the bands — they bounce and
skitter
Like no signals heard before."
"Tain't my fault," I said, while
facing
This big guy, who stood there
bracing
For my onslaught. I kept pacing
Back and forth across the floor.
Quoth he, "You'll transmit no
more."

So, these days I sit here napping
On my hamshack door's no tapping.
On the shack there is no rapping;
"Fed" put padlock on the door.
Shack is closed, forevermore!

Carl H. Nelson, NJ6K

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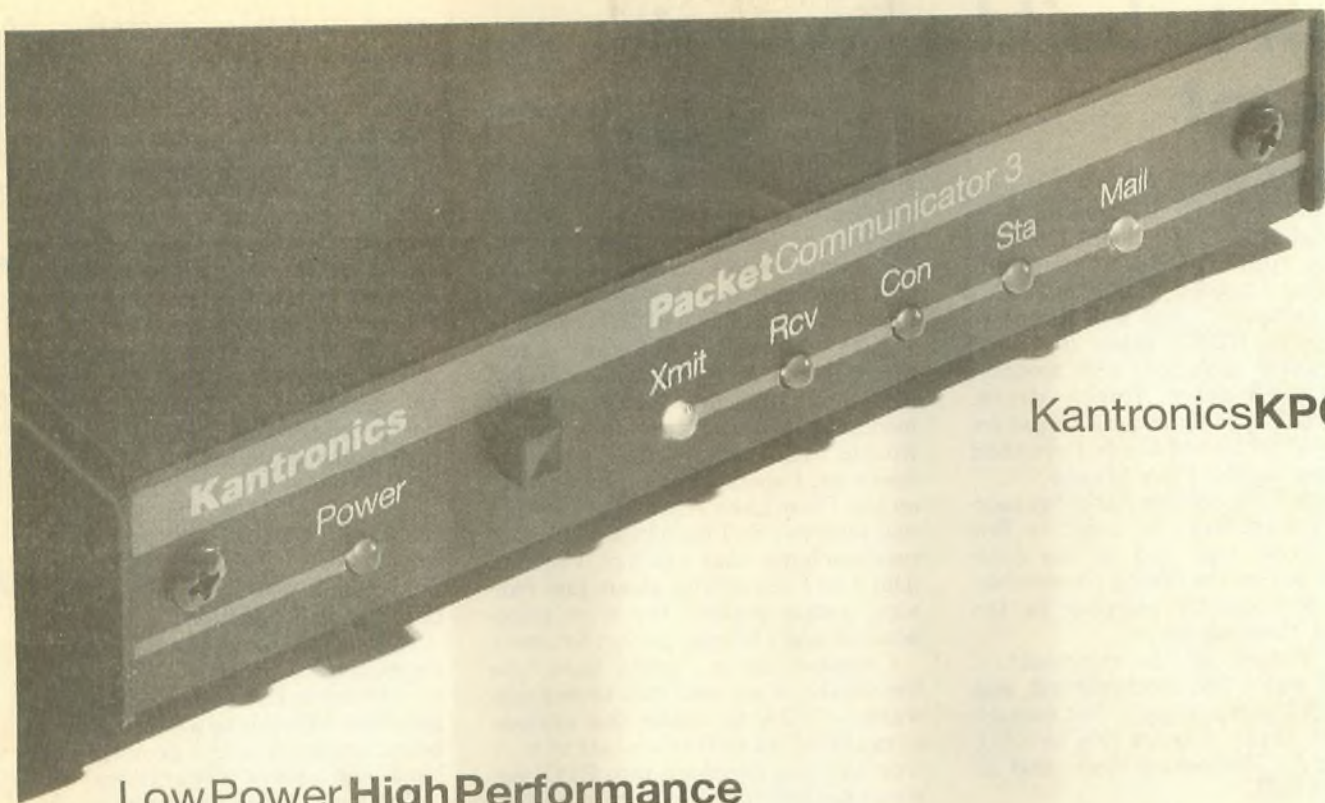
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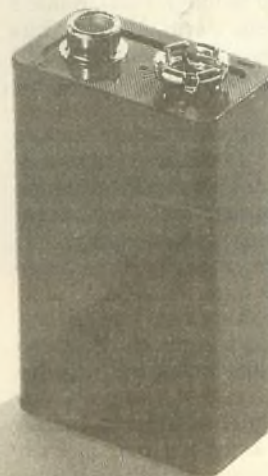
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How to build a computer — cheap?

JIM HEIL, KB5AWM

It sounded so logical. So practical. So ecological. And soooo cheap! I already had, in spare parts, just about everything I needed to put together a second computer, just a little one to run a packet BBS. I mean, it was all there—color monitor, 286 motherboard, hard drive, floppy drive, keyboard. Hey, I figured, all I need are a couple of cables and a case. I even had the power supply. Piece of cake.

So there I sat, one fine Saturday morning, screwdrivers in hand (a few screws loose, too) and all the components out on the dining room table; packet was quietly chirping in the distance, cheering me on.

Well, almost all the components. Oops, it was a 286 motherboard, and only an XT power supply. Not enough juice. No sweat. A quick trip to EPO, my friendly electronics store, and all would be well.

I walked dewy-eyed and innocent into EPO. "Gimme a power supply," I growled in my best John Wayne imitation. "And throw in a case while you're at it, pilgrim." I happily walked out of EPO with a case and a power supply. But just as I was about to saddle up the trusty Mustang and leave, I realized that I needed an AT floppy controller. Well, yeah, it would control a hard drive too, but I didn't need that. Yet.

So I hooked it all up and it ran. But the 286 motherboard was not a happy camper. By then I had put enough money into the project to convince myself that it would be too expensive to abandon now, so it was back to EPO for another 286 motherboard; they were starting to wonder what bank I had just robbed. John Wayne has given way to Don Knotts by now. "I need a 286 motherboard." Sheepish grin.

The new motherboard safely tucked under my arm, I realized that my wonderful one meg of RAM at home was not fast enough for this new board. Add one more meg (and counting).

Back to the homestead. Hard drive fever had struck Bob KA5GLX, and the sight of that shiny new hard drive, 40 meg of it, was too much. Back to EPO. The Mustang knew the way by now.

Of course, it's no use to have such a nice hard drive and then pair it with that ratty old floppy, right? Add one 1.4 meg 3.5 in. floppy. Hey, it's still a lot cheaper than buying a whole computer all at one time, right?

By now, I was about 20 feet over my

head. Ten feet I could have handled, but even I have enough sense to call for help at 20 feet. Back to EPO to get the system assembled. Richard and Rudy were only too happy to oblige, tightening up and testing my beautiful new 286 system while joking, lousy rats that they are, that I really needed a faster machine, like a 386.

"Get thee behind me, Satan!" I yelled. Armored in righteousness, I left EPO, carrying my cheap new 286 machine. It ran. It ran fine. But it wouldn't run *Ventura* and I use *Ventura* a lot. I spend all my time working on the Clear Lake ARC's *Radio Amateur Gazette*. So I need (not just want) two machines that can run *Ventura*. (Did I say something about just running packet earlier? We were astronomical units beyond packet by now.)

I needed—as in "gotta have," to the depths of my soul (not to mention wallet)—VGA to make the system complete. Inspiration struck. I wouldn't run headlong into EPO, no-sir-ee, not this time. No more impulsive shopping. I called Richard and sure enough, EPO was running a special on VGA monitors and cards. Only two left, but Richard would gladly save one for me. To protect myself against fur-

ther madness, I shanghai'd Bob to ride shotgun—literally—and keep me from buying more. "Stop me before I kill again," I pleaded.

So there we were at EPO, me looking at the VGA monitor and graphics card and my trusty pal Bob watching to see I did no more damage. Bob? Where did you go? What do you mean you haven't seen that guy in two years and you desperately need to talk to him? Bob? Please save me from myself.

No Bob. Not in time. He was in time to help me carry out the VGA monitor and graphics card. Luckily, he didn't notice the new 386 motherboard I had inconspicuously hidden underneath my arm—with, of course, four megabytes of RAM. That is, he didn't see it until we got in the car (sheepish grin). Now I certainly had enough power to run *Ventura*, and half the city of Houston if I wanted.

Hey, it was easy to build this cheap computer. All it took was enough parts to start with, five trips to EPO, a couple of good friends to watch out for me, boundless faith in the goodwill of my bank, and a set of screwdrivers.

But gosh, I don't want to use this gorgeous system just to run packet. Well, let's see, I do have that power supply still left, and some cables, and I could cannibalize one of those floppies. . .

WR

Contests and you

ROBERT J. HALPRIN, K1XA

Superb conditions, Novice 10M SSB privileges and vast armies of contesters tuning your subband to work you: It's an ideal combination, whatever goals you've set in Amateur Radio.

What's the difference between contesting and conventional Amateur Radio operating? Well, contesting is like putting your normal hamming into fast forward. A rapid-fire information exchange is substituted for the more leisurely ragchew, and then onward to the next contact. You'll find it will really get your juices flowing!

In a sense, you're actually exchanging the same kind of information that you would in a traditional ragchew, but the format is more concise.

For the next few years, band conditions will be as good as they ever are,

particularly on 10M, so if you want to try contesting, this is the time. You can probably work more contacts during one day of a contest than you might normally work in a month. Moreover, when it comes to 10M, *everyone* (not just your Novice and Tech colleagues) tunes the Novice SSB portion, because they have the large Novice/Tech population foremost in mind. In so doing, the Novice SSB subband has become the nerve center of all 10M activity.

With solar activity peaking such that 10M is wide open for worldwide communications throughout the day, the Novice SSB portion is the principal crossroads of the entire Amateur Radio contest world. So whatever you want to work, you'll find it in your portion of the band.

Contests defined

Generally, a contest involves working as many different stations as possible in a predetermined period of time (usually a weekend). Depending upon the individual contest, a premium is placed on working specific types of stations in different geographical areas (which could be states, ARRL sections, DXCC countries, grid squares and so on).

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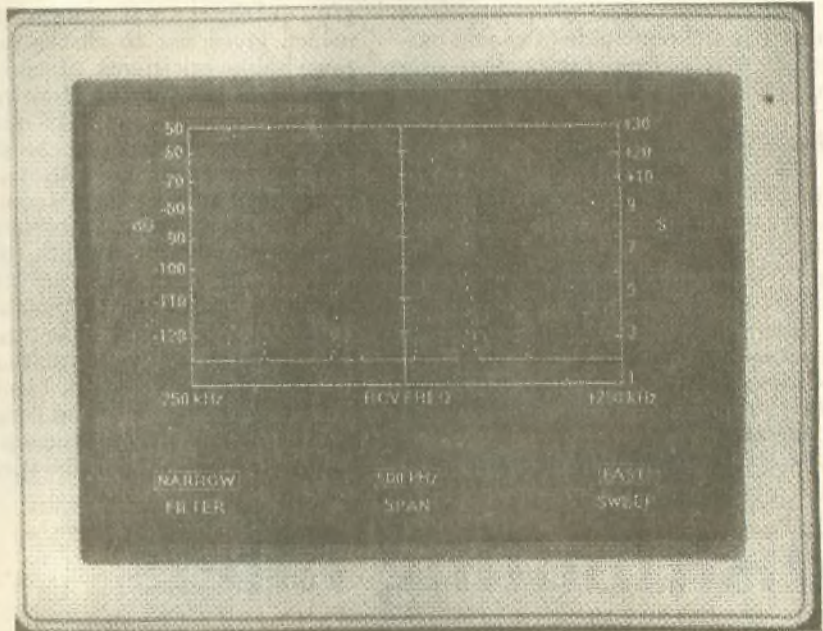
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The geographical areas are called "multipliers." Contests sometimes have elaborate methods for determining your final "score," which is generally determined by the number of QSOs (two-way contacts) or QSO points times the number of multipliers. But you don't have to bother with the arithmetic unless you plan on submitting your log to the organization sponsoring the contest.

With all this talk of keeping score, multipliers and so forth, it's important to keep in mind that radio contests are not just for that small hard-core group of eccentrics who are out to "win." It's perfectly fine to sit down at the rig and work a few stations, then take a break or call it quits. It's all up to you; you're free to choose when, where and how long. It's the multitude of casual participants that keep the contest program alive and well.

Qualifying for awards

DX-type contest contacts and awards are usually interrelated. If you're hunting for DXCC, Worked All States, Worked All Continents, the new ARRL Diamond Jubilee award or the many other certificates that are available, keep in mind that making the required contacts for those certificates is often, if accomplished solely via routine operating, rather time consuming.

In the fast-paced environment of a

major contest, when all sorts of stations from rare states and countries show up and are workable with reasonable effort, you'll be surprised how quickly you can rack up the QSOs you need for awards, because these operators are placing their complete emphasis on working as many stations as possible in the shortest amount of time. Moreover, you'll be amazed at all the states, countries and what-have-you that will be ripe for the taking during a contest, while maintaining radio silence at other times.

Each contest is a unique adventure, with the challenge of the unexpected waiting on every frequency. Sure, exchanging information machine-gun style is not what you would really call true interpersonal communication (which gives rise to all the perfectly reasonable criticisms of contesting mentioned previously). However, you may want to get your WAS out of the way quickly, so that you can sit back and relax and converse with stations of your choice to your heart's content.

Look at it this way: You could spend months plumbing the depths of 40 or 15M looking for a Maine or Montana ragchewer with which to finish up your WAS. Or you could snag one in a 15-second contact while you're tuning the band during a contest. The former is a lot more "up close and personal," but the latter is a more efficient use of both your time and the radio spectrum.

There are lots of tips and techniques for making effective contest QSOs: keep your exchange short and to the point, make sure you know the correct exchange before entering into the fray (look in the contest section of this and other Amateur Radio magazines); and others. For more information on contesting, DXing, QSLing and operating in general, see *The ARRL Operating Manual*.

A final thought: Always have fun

So, next time you're tuning across 10M and you hear the equivalent of the compelling hustle-bustle associated either with a rock video, the Morton Downey Jr. show or the conduct of the salesmen on the floor of the New York Stock Exchange, consider that contesting is a part of what makes our Amateur Radio hobby rich and colorful. It's also the express lane to qualifying for all kinds of awards. And, if you're "in search of excellence" in Amateur Radio operating, contests are where you'll find it.

So, how about broadening your Amateur Radio experience and having some fun by personally savoring the friendly competition of contests? Contests are feisty, productive and a whirlwind of excitement. Remember to operate at your own pace and you'll have a lot of fun, while improving your Amateur Radio skills. — *On Air, an ARRL Publication*

Distributing filters

TOM TORGERSON, N0MOP

Within the last two years I have had city inspectors, police, and a petition thrown against me by the neighbors for RFI problems. Two city inspectors cleared my ground-mounted vertical and dipole, but a third wanted me to get a permit for the vertical. At least if it was licensed then the neighbors couldn't call and have a city inspector come over every few months. The more I thought about it, the more I figured I might as well have the dipole on the permit as well.

Getting the permit was tricky since the planning commission wanted exact specs on all the antennas, as well as a diagram of the property and location of the antennas. So the planning commission made copies of everything, then the zoning had to sign off on it. The antennas, by the way, have been up for two years so this building permit seemed unnecessary but that is the way things work down at the Public Health building. It cost less than \$27 for it all, but it took about an hour to get. I made a copy of the permit and taped it to the vertical for all to see.

The main problem was phone interference on 75M, even at the 100W level. I called the telephone operator and asked for repairs. After going through many layers of people I finally found someone who knew something about RFI. I talked to a supervisor of installation and maintenance for about 45 minutes and made up a plan of action.

If we could first eliminate my phone from interference, then that information should be helpful to the neighbors' installations. Since I should have the most RF around the house and phone, it was a place to start. Next day and after 1 1/2 hours I was clear on my phone at the 800W level. It took two filters downstairs and one at the block (where I plug in my phone). One of the filters downstairs is broadband and gives

about -40db between .1 and 100 Mhz. But that by itself was not enough, the two other filters were needed. The only one I would have to pay for was the block filter, about \$13.

The next day they went over to two neighbors who were especially affected and, basically, did the same process of installing the filters. One house needed two filters, the other three. I should note that one phone was a *cordless!* The other was a wall phone so the block filter had to be hardwired into the line as close as possible to the phone itself. I paid for the two neighbors' block filters, probably the best \$26 I have spent recently. US West is now going to contact the other four neighbors and see if they want their phones fixed — those I'm not paying for. As for the TV interference, I won't get any when I earth-ground the converter box, so I told them to call the cable company and let them fix it for them.

The best part is that I can now use my set on 75M, even with the linear, and feel fairly secure I won't be harassed again by inspectors or anyone else. Of course, since I am renting the house, when I move it may start all over again, but I'll get a permit right away and call the *right* person at the phone company. WR



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Special Events...

Club station opening

The Contoocook Valley Radio Club will operate K1BKE 13-14 February from the Christa McAuliffe Planetarium in Concord, New Hampshire, to celebrate the grand opening of the club station.

Operation will be on the 80-10M bands.

For QSL, send #10 SASE to the Contoocook Valley Radio Club, P.O. Box 88, Henniker, NH 03242

UP 200 Sled Dog Championship

The Hiawatha ARA will operate N8GBA on 19-21 February to honor the UP 200 Sled Dog Championship.

Operation will be in the lower end of the 10, 15, 20 and 40M phone bands from 1700Z 19

February to 1700Z 21 February.

For an unfolded certificate, send large SASE with two stamps to Richard Schwenke, N8GBA, 21 Smith Lane, Marquette, MI 49855.

VoTech Week

The North Kitsap ARC will operate K7SXL on 20 February at the Olympic College in Bremerton, Washington, during the VoTech week conducted by the college.

Operation will be from 1600Z to 2400Z on the following frequencies: CW— 3.650 to 3.690; 7.040 to 7.080; 14.040 to 14.080; 21.040 to 21.080; 28.025 to 28.075. SSB— 3.840 to 3.880; 7.240 to 7.280; 14.240 to 14.280; 21.340 to 21.380; 28.440 to 28.480 MHz.

QSL with SASE to North Kitsap ARC, P.O. Box 2268, Silverdale, WA 98383-2268.

No such thing as a quarter-wave antenna

VAN R. FIELD, W2OQI

Just a note on K5YNR's article, *The Myth of the Resonant Antenna* (December '92, p.6). Sounds like an old time *Broadcast* engineer. I wonder if you ran it by Kurt N. Sterba?

I guess what he says is more or less true, but the article steers away from what is conventional and workable, into his pet peeve.

First, what is called a resonant antenna? A half-wave dipole, I guess. When he tells me that a 5/8-wave antenna over a groundplane is a non-resonant antenna, I say whoa, why not? It's really a half-wave antenna raised up 1/8 wave from the groundplane and matched. This is, of course, a take-off on a double extended Zepp, which gets its gain because the signal on the horizon is increased until the two half waves are apart by slightly more than a quarter wave. At this point the signal pattern starts to split.

I assume that the field strength graphs included are the result of the antenna patterns at the horizon. I don't see what this has to do with resonance. Any antenna is made resonant by more or less L or C.

The VSWR meter is indeed an imperfect instrument with which to evaluate an antenna *but*, it ultimately serves the amateur well because the solid state rig *needs* to see 50 ohms,

and that instrument tells you when you have something close to 50 ohms. It doesn't, however, tell you whether you're above or below 50 ohms, and that is its weakness. This can be done (as it is in the so-called automatic antenna tuners), but it's not relevant here.

In the VHF-UHF world we don't use tuners; we make the antenna look right, and when it does its pattern will usually have the majority of its signal on the horizon. On HF a tuner to a wire antenna is just great, it gives us the freedom to change bands by merely retuning. How do we tune? We look at the VSWR meter! On HF patterns are all over the lot if the antenna is horizontal. If it's vertical, it should be on the horizon (90 degrees).

I consider that the antenna, the open wire transmission line and the tuner together make a resonant circuit. When my VSWR meter approaches 1:1 I know my system is in resonance. Is this a non-resonant antenna? Semantics, I don't really know nor do I care because it's *working*!

One parting shot, I don't think there is such a thing as a quarter-wave antenna because, without a groundplane making up the "other" quarter, it won't accept much power! It takes current flowing in two wires to light a light bulb!

WR

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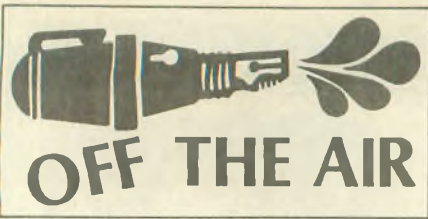


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The "general"

In reference to your Dec. '92 Publisher's Microphone, I agree with the idea of lowering the code requirements and will go one step further. I think the code requirement should be 5 wpm. Furthermore, there should only be one license, the "general."

I do not advocate cheapening the license to bring in quantity. I advocate toughening the theory tests. Alas, what we bring on line today doesn't know the difference between the volume control and RF gain control. I have come across many Extras who can't read a simple circuit diagram.

The purpose of CW for communications is antiquated. In an extreme emergency 5 wpm will get the message through. Why are we still clinging to 1935 requirements?

The American voters have just voted for a remodeling of the political system, now it's time to remodel the Amateur Radio Service; "it is time for change." This major change would simplify the FCC's administrative costs, which in today's cost-cutting climate would be appropriate. It would also cut down the cost of *Callbooks*.

Since we consider ourselves more and more a hobby I believe a license fee to cover FCC expenses would also be appropriate. Why should taxpayers pay for our "hobby"?

ARNOLD SAMUELS, KH6COY
Ocean Shores, WA

Memory process

The article by WB2HJD, "Visual Code" (December '92), caught my attention. Being a long-time CW operator, I seldom recall that there are people who have trouble remembering code characters. But, each month as I read new issues of ham magazines, I can see that there must be quite a large problem, inasmuch as there are many offerings of computer programs, tapes and printed material to help people with their code learning, mostly with code speed.

The author has certainly clearly identified a real problem for some people, and his solution hopefully will help some otherwise unsuccessful CW learners. However, I can only wonder if having to memorize a set of graphics is going to help an already bad memory. But, I can offer no better solution for a problem that he has so thoroughly analyzed.

It is possible that a learning method used by many of us who initially had trouble remembering code characters might still be of some value. In this method, code characters are written on a card and memorized, and then they are sounded aloud with dits and dahs for letters in each word as they are read from a book or other publication. When a problem character is en-

countered, memory is refreshed from the written characters, and then the "reading" is continued.

When I used this method 57 years ago while riding public transportation to and from high school, fellow passengers gave me odd looks as I ditted and dahed through a school text. After a while, character recognition ceased to be a problem and the change to audio code reading seemed to be easy.

Fortunately, a friend loaned me his Instructograph, a variable speed paper tape keyer (high-tech in those days) that could start me at 1 wpm. Although I eventually became proficient in code reading and code speed, I am still very sympathetic with those who have problems with learning the code and getting up to test speeds.

JACK G. HINES, K4GIO
Reston, VA

Oversights

In the October '92 issue of *Worldradio*, page 57, a boo-boo was made in the comparison of the "Continental" and the "International" Morse. I worked on the ol' Reading Railroad and used the Continental Morse both for train operations and for Western Union. The letters "J" and "Q" were not the same. The "J" was dahdihadit (— · — ·); the "Q" was correctly stated in the article (· — · —).

Also, the article, "Phacts About Phonetics," missed the phonetics that were pushed by the ARRL, starting shortly after the big war until the early 60s when the current phonetics were adopted. They are listed in quite a few of the ARRL handbooks, i.e., Adam, Baker, Charlie, David, Edward, etc. If the boomer generation comes up with another, as suggested, I will personally revert to the "Able Baker Charlie Dog Easy" phonetics.

RAY BILGER, W3TDF
Coopersburg, PA

Specific authorization

As a member of US Army MARS and the National Communications System Shared Resources High Frequency Radio Program, I am compelled to respond to the December 1992 article by Ann Shaver, AH6KY/ABM6AS, concerning the role of Army MARS in an emergency. Either Ms. Shaver is a novice member of Army MARS or she is ignorant of the provisions of US Army Field Manual 11-490-7 which contains the mission of US Army MARS. A copy of this manual is issued to every MARS member.

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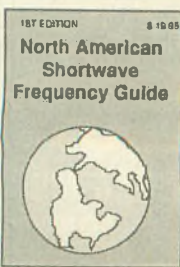
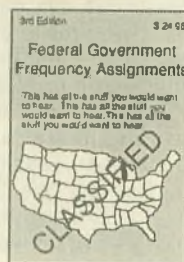
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The Army MARS mission is to provide emergency backup communications to *designated agencies*, not civilian individuals, and to provide morale communications for military members and designated civilian employees of the Army when not performing its emergency backup mission. Army MARS is specifically excluded by regulation from handling civilian health and welfare traffic. If Ms. Shaver and her husband cannot live with the mission of Army MARS, perhaps they should resign from that organization and devote their efforts to those organizations that *are* authorized to handle civilian health and welfare traffic.

Further, if the Rhodens were operating on US Navy frequencies (as indicated in the article) without prior Army authorization, they were in violation of their Army MARS operating authority.

DAVID E. PHILLIPS, KF0HW/
AAT7PX
Maryville, MO

"Destinated" coined

Several months ago a letter was published from a ham who seemed to have a great dislike for people who use the word, "destinated." He said in effect that users of the word were lids.

I looked in the dictionary and did not find the word "destinated." However, I didn't take that to mean that the word does not exist. It must, how else would he be able to object to it? He also used the word lid; now the dictionary says that a lid is a removable top to a box, jar or can. It is also a hat or a ceiling on prices. But nowhere could I find an entry that said "bad operator" as it means on the radio. Somebody had to coin the word, it didn't give birth to itself.

The word "destinated" was also coined by someone, just as countless words have been coined: computer, byte, kilobyte, megabyte and so on. These words are all in use and no one questions them or their origins. It could be that some day "destinated" will be in the dictionary also . . .

FRANKLIN D. FOSTER, N7WMS
Hoquiam, WA

True story

In 1976 after taking my Novice test and sending it to Gettysburg, and waiting for my Novice license to arrive, I decided to practice my code (us-

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ing an oscillator) by sending imaginary QSOs.

To make it more realistic I made up my own call sign. Knowing the prefix would be WN9, I concentrated on the suffix. I thought since the prefix started with "W," why not start the suffix with "W" and use the first and last letters of the alphabet, "A" and "Z." So there it was—I would use WN9WAZ as my call sign.

After several weeks (nine to be exact), the big day came when I saw that large white envelope from the FCC, and when I opened it you could have knocked me over with a feather because I had been issued the call sign, "WN9WAZ."

Worldradio is the *only* radio publication I get. I read it from cover to cover. Keep up the great work!

OTTO JULICK, WB9WAZ
Cayuga, IN

Just do it

In the December '92 issue I read three letters: one of lowering the code requirements for General Class from 13 wpm to 10 wpm; another about William C. Wells, WA8HSU, wanting to abolish the Advanced Extra Class licenses; and the last piece entitled "Toss the Key."

In the month of September 1990, after work and dinner, I took my usual 10-mile bicycle ride on my 10-speed, but this day was different. While crossing a street in the crosswalk, I was hit by a car turning left. I spent two weeks in the hospital, underwent four operations to save my crushed left leg while the rest of my body was a mess. The doctor said I would be off work for about a year.

Well, I decided at that point that I needed a goal, and with that came the decision to go from not being a ham to acquiring an Extra Class license. First I went for the Technician (in the wheelchair), then the Advanced (with crutches), and finally the Extra Class (on my two feet). It took approximately a year.

These people who complain about having to put forth a little effort to accomplish anything in their lives are missing out on the real meaning of life—it's the challenge, self-motivation, conquering what other people only dream of, and learning.

Today I am back at work 100 percent. I have my Extra Class license and am working toward a commercial general RadioTelephone license. It can be done if you just do it.

TERRY KING, AB6HZ
Downey, CA

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Silent Keys

Kiser Cranford, K4EB

Kiser was born in Bibb County, Georgia, in 1901 in an area that is now part of the city of Macon. At the age of 10 he became interested in "wireless" because he and a friend who lived across the street wanted to communicate with each other after dark when they were not allowed outside. They had tried wired telegraphy but were not able to get the wire up high enough to clear the wagon traffic on the road between them. As Kiser related, "After it had knocked some farmers' hats off," his father made him take it down.

He had his first wireless equipment in operation in 1911: a Ford spark coil for the transmitter and a "coherer" type detector for receiving (later replaced with a crystal detector). His friend, however, never mastered the Morse code and they never really communicated, but Kiser's interest remained nevertheless. He made numerous contacts with his wireless equipment, using the call sign "KC," his initials, before amateurs were ordered off the air when the US entered World War I in 1917.

He returned to wireless operation in the 1920s, being licensed by the Department of Commerce under the call sign 4GPU (later, of course, W4GPU) in Macon, Georgia.

In 1934 he accepted employment as a machinist with the Navy Ship Yard in

Washington, DC. He lived in Capitol Heights, Maryland, a Washington suburb, and was licensed under the call sign W3FII. He was one of the earliest hams to build and use a rotary beam antenna. He remained in the Washington area until the mid-1960s when he retired from his position at the Navy Ship Yard and returned to his home town, Macon.

Upon returning here his call sign was changed to K4EB. He operated mostly

75M and 20M SSB and became a well-known figure on those bands. When his operating was curtailed by poor health, Macon hams got many inquiries as to the status of "old Kiser." His health began to deteriorate in the late 1980s and more recently he was confined to a nursing home.

Kiser passed on on Friday, 30 October 1992 at the age of 91. Ham radio lost one of its few remaining pre-WWI wireless operators, a colorful figure who liked to "spin yarns" of the "olden days" of the hobby. May his soul rest in peace.

—Information submitted by Harvey Chase, W4TG

Otto Geyer, W8EA

One of the old-timers among central Ohio amateurs, Otto N. Geyer, W8EA, died 14 October 1992 at the age of 87.

He was a chief tool designer at Rockwell International, retiring in 1970. Otto was a member of the Ohio National Guard, Newark Mannerchor, life member of the Order of Elks, ARRL, Old Timers Club, QCWA, and the Newark, Lancaster and Columbus Amateur Radio clubs.

For many years he maintained a daily schedule with C.H. "Empty" Wessels, ZS6KD, in South Africa. In later years a major part of his Amateur

Radio activity was on 2M every morning except Sunday as a senior member of the Medicare Net, a group of veteran central Ohio amateurs. Members of this net are located in Columbus, Newark, Granville, Flint Ridge and Lancaster, Ohio, and usually also meet each Wednesday for lunch at one of the area restaurants.

Otto's wife, Pearl, died 8 July 1982. He is survived by a stepson and step-daughter-in-law; one step-grandson; and three step-great-grandchildren. Members of the Medicare Net and all who knew him remember W8EA with respect and affection.

—Information submitted by Jack Hermann, W8TSF

George Raye, W1UK

George W. Raye, W1UK, who was a pioneer in Amateur Radio, passed away after an illness of several years on Friday, 6 November 1992, at his home in Darien, Connecticut.

He was an electrical and design engineer with Birds Eye Division of General Foods. He was responsible for many inventions that were patented and utilized in their freezing process.

He was a very active ham and kept schedules with his two brothers, John, W1PUM, in Simsbury, Connecticut, and Alex, KA3TTK, in State College, Pennsylvania, and also his cousin, Harry, W1SMQ, in Perry, Maine.

A memorial service was held in Eastport, Maine, on Saturday, 15 November 1992. His ashes will be brought to Eastport for burial in the spring.

—Information submitted by Harry J. Raye, W1SMQ

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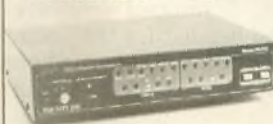
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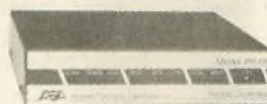
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STATION APPEARANCE

Harry Snyder, WØRN



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Winners will also receive a top quality, Laserjet-printed copy of the DXCC and WAS BeamHeadings list (a \$15.95 value) compliments of Jack Hurray, W8JBU.

Harry's, WØRN, station reminds us of the adage, "One is just never enough!"

I started with a crystal set in the sixth grade (1938) in Blair, Nebraska. I operated the projectors in the local theater and then moved on to a chief

engineer's job at a B-C station in Fremont. I spent several years at sea during WWII, under the call WØNVE, 1946. I installed the area's first two-way radio for the Fremont PD in 1947. I wound up owning three AM/FM stations in Nebraska, Iowa and Illinois. I also did consulting engineering for

other stations in the area.

I'm active on many bands. In 1968 I received my Extra Class call and became WØRN. I moved to Carefree, Arizona, in 1988 . . . enjoying the weather along with collecting Collins gear. I'm a QCWA member, #7448, Arizona Chapter 16.



Amateur "Hi"



This month's winner was submitted by Jack R. Main, W4YCZ. Once you're destined, just remember to breathe!

Last summer, I jumped into my pickup truck and headed for the country to get a load of topsoil. I turned on the 2M rig and heard two friends on the 73 machine. They were discussing the merits of the word "destinated." Both agreed that it wasn't a real word and shouldn't be used.

I inserted my call and one of them answered me, so I told him I also agreed and that I would like to stay and talk with them but was just going up the ramp of I64, headed for Suffolk to get my top soil.

Just for meanness, I passed my regards and said I was hanging up the mike, as I was now "interstated." My friend then asked if, when I got to Suffolk, I would be "Suffolkated?"

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DX WORLD

John F.W. Minke III, N6JM
6230 Rio Bonito Drive Carmichael, CA 95608

W100N

The following DXers were awarded *Worldradio's* Worked 100 Nations Award during this past period:

- 439) Edward M. Hansell, W0ODD, 16 Nov. '92
- 440) Raymond C. Baldwin, WB7OHF, 10 Dec. '92
- 441) Robinlee Barber, KB2GKS (all 10M SSB), 10 Dec. '92
- 442) Robert R. Dockery, WD4CNZ (all 10M SSB), 10 Dec. '92

The present nations list includes the CIS countries as independent nations. However, you cannot claim these nations separately when they still were part of the former USSR. Estonia (ES/UR), Lithuania (LY/UP) and Latvia (YL/UQ) are retroactive back to 1978.

Also, when applying for the award please read the rules thoroughly. We had to return one application as the dates, modes and frequencies were omitted.

Snake Island (4K5ZI)

Nick Lavreka, RB5FF, the chief operator of 4K5ZI, reports that they are still hoping for separate DXCC status for Snake Island. They are still awaiting the outcome of the political situation between Russia and Ukraine. The last operation was in July 1992. Nick says all QSL requests should be sent via DF8BK, Robert Schwiegerhausen, Goebenstr. 7, D-2800 Bremen 1, Germany.

Madagascar (5R8)

George, 5R8AB, has been very active on 15M near 21.2670 MHz between 1600 and 1930 UTC.

A few other calls were reported during the months of November and December and include the following:

- 5R8AL 21.335 MHz 1700 UTC
- 5R8DE 28.485 MHz 1730 UTC
- 5R8DF 14.025 MHz 0000 UTC
- 5R8GR 21.260 MHz 1700 UTC
- 5R8GW 21.335 MHz 1715 UTC

Singapore (9V1)

Very active during the month of No-

vember was 9V1ZE on CW. This station was reported on 1.824 MHz at 1445 UTC, 7.007 MHz at 1230 UTC and 21.004 MHz at 0030 UTC. Other calls reported from Singapore include:

- 9V1XE 14.019 MHz 1500 UTC
- 9V1XQ 14.189 MHz 1200 UTC
- 9V1YC 21.065 MHz 2345 UTC
- 9V1YS 7.004 MHz 0030 UTC

Tonga (A35)

Fr. Kevin Burke, A35KB, will be leaving Niuafou'u (Tin Can Island) in January to travel further in The Kingdom of Tonga. The island counts as OC-123 for IOTA purposes. The island also has some interesting postage stamps.

Fr. Kevin was born in Blackburn, England, in 1941, and was ordained a Catholic priest in 1966. He has been in Tonga since that time. A35KB is Kevin's first and only license that he received in August 1986.

All contacts are barefoot, as there is a 100W power limit in Tonga. His antennas include various longwires, a vertical, 40M delta loop and a 20M delta quad.

Look for Fr. Kevin in the various DX nets including 14.222, 14.236 and 21.205 MHz. He also checks in to a 40M net that meets on 7.180 MHz (he of course will be below 7.100 MHz). About once per week he checks into the net that meets on 14.226.5 MHz. However, not all of his operations are net style and he can also be found calling CQ. In a pile-up, Kevin prefers to pick up a short list of four or five stations, work them, and then pick up another batch. He ignores breakers.

There is no QSL bureau in Tonga. All QSL requests must be sent direct. Kevin will answer all QSL requests that include sufficient funds. He prefers the green stamps as the local post office doesn't really understand IRCs.

The Amateur Radio Club of Tonga is dormant due to lack of members, with A35MS looking after its affairs. Other resident operators include A35PG and A35NS. Several new calls are expected to surface soon.

China (BY)

On RTTY BY1QH shows between 14.087 and 14.090 MHz from 0030 UTC. And, on the same band, this one was worked on SSB near 14.186 MHz at

0100 UTC on 10 November.

Very active on 10 and 15M CW is BY4RB. Look for this one between 21.020 and 21.026 MHz around 0100 UTC or 28.026 MHz around the same time.

On 15M SSB BZ4RBX has been reported often. Check 21.222 to 21.294 MHz after 0100 UTC.

We also had a report of a BZ5DX on 21.020 MHz at 0130 UTC early in December.

Iran (EP)


QSL cards from Iranian amateurs for all contacts made since 20 August 1988 are now being accepted for DXCC. Previously rejected cards may be returned for DXCC credit.

Jan Mayen (JX)

JX7DFA was reported many times during November, mostly on CW. Look for this one between 14.001 and 14.013 MHz or 21.010 and 21.025 MHz. His operating times vary; try 0100 or 1200 UTC for 20M and 1400 to 1800 UTC for 15M. SSB activity for JX7DFA was reported on 14.256 MHz at 2145 UTC and 21.295 MHz at 1900 UTC. There was a sole report for this one on 10M where a deserving DXer got him on 28.009 MHz around 1730 UTC on 20

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November.

Also reported earlier in the month was JX3EX who was active in a few of the DX nets. He was also reported on 14.184 MHz at 1645 UTC and on 21.300 MHz at 1330 UTC.

There was also a report of a JX6EX on 21.297 MHz at 1545 UTC. However, this could have been a recording error and was most likely that of JX3EX.

Cameroon (TJ)

TJ1GG has been reported very active on the bands, mostly CW. He has also been reported in the ET Net that meets on 14.160 MHz around 2130 UTC. The following is a summary of his activity:

3.502 MHz 0430 UTC
7.003 MHz 2200 UTC
10.101 MHz 2015 UTC
14.028 MHz 0230 UTC
18.078 MHz 1430 UTC
28.027 MHz 1415 UTC

Looks like he missed a couple of bands!

Gabon (TR8)

Much activity has been reported for this one. For 40M look for the following calls:

TR8GR 7.015 MHz 2300 UTC
TR8NSY 7.006 MHz 0015 UTC
TR8YA 7.021 MHz 0545 UTC

On 20M:

TR8LVP14.021 MHz 2100 UTC
TR8XX 14.032 MHz 2000 UTC
TR8YA 14.025 MHz 1415 UTC

On 15M:

TR8LVP21.021 MHz 2130 UTC
TR8YA 21.010 MHz 1945 UTC
TR8YT 21.041 MHz 2200 UTC

On 10M:

TR8JH 28.545 MHz 1200 UTC
TR8YA 28.470 MHz 1415 UTC

Only one report for RTTY activity was noted from Gabon, that being TR8YA on 21.090 MHz at 1915 UTC working into Florida on 19 November.

Marshall Islands (V73)

Scheduled to have been on until 15 January was George Adkins, AD1S, and Darrell Boyer, AH9B, operating as V73S and V73B, respectively. This was an all-band effort, 10 through 160M, CW, SSB and RTTY.

Amateur Radio Language Guide

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SPEAK TO THE WORLD

A35KB, July 1991,
"The 10-15-20M
vertical really is
magic!"



If you missed George or Darrell, don't fret as there are still several other active calls from this one.

George Beckley, V73EX, has been busy handing out new ones for the deserving on the new WARC bands. He has been on 17M several times between 18.125 and 18.140 MHz. Try looking for George after 2345 UTC. George was our Marshall Islands contact on that band.

George also shows on other bands too. Look for V73EX on 12M between 24.940 and 24.950 MHz around 0030 UTC, or on 20M near 14.236 MHz at

0330 UTC, and 15M on 21.335 MHz at 1915 UTC.

Also, very active is V73CT, who has been on several bands. Listen for this one on 75M between 3.790 and 3.797 MHz around 1200 UTC. On 40M check 7.001 MHz around 1045 UTC, 15M near 21.294 MHz at 0030 UTC, and on 10M between 28.439 and 28.490 MHz after 0015 UTC.

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D2FGC	27 July 1992 to 01 Sept. 1992
ET3BC	09 Oct. 1992 to 20 Oct. 1992
ET3YL	09 Oct. 1992 to 20 Oct. 1992
JT1/K7HDK	15 Sept. 1992 to 29 Sept. 1992
KP5/N0TG	28 Dec. 1992 to 04 Jan. 1993
PY0TSN	12 June 1992 to 31 Dec. 1992
S21ZC	06 Aug. 1992 to 12 Aug. 1992
S79CW	17 Oct. 1991 to 16 Apr. 1992
TA/DK7PE	20 Jan. 1992 to 18 Feb. 1992
AH0G/TF/P	From 29 June 1992
TU4EF	01 July 1992 to 02 Oct. 1992
VS6/DK7PE	18 June 1992 to 01 July 1992
ZA/DF3CB	10 July 1992 to 10 Oct. 1992
ZB2/IK0FVC	07 Aug. 1992 th 20 Aug. 1992
ZS9/DK7PE	Prior 31 May 1990

New DXCC countries

The ARRL Awards Committee voted unanimously to accept three of the former Yugoslav republics as independent countries with the following effective dates:

Croatia (9A, ex-YU2) 26 June 1991
Slovenia (S5, ex-YU3) 26 June 1991
Bosnia-Herzegovina (4N4, YU4) 15 October 1991

The above dates are based on the dates of their independence. The DXAC recommendation of Macedonia (4N5, YU5), has not been voted on.

IOTA

Not much has been reported of IOTA activity recently. What we have found we have listed as follows:

AS-081	HLØBTQ/5	Maemul Island
	21.260 MHz	2300 UTC
NA-041	KL7BYA	Baranof Island
	14.252 MHz	0230 UTC
NA-045	XF3R	Isla de Cancun
	14.260 MHz	1800 UTC
NA-067	KA1FOW	Rouge Banks Island
	21.260 MHz	1915 UTC
NA-134	OX3KM	Disco Island
	21.345 MHz	1800 UTC
OC-088	YB7LGA	Borneo Island
	21.260 MHz	2300 UTC

Pirates

Our great deceiver, Slim, is still at it. Add these calls to your list of bogus calls: JXØBX, P5DTG, YJ8BD.

Visalia

It's that time of year again! The 1993 International DX Convention will be at the Holiday Inn in Visalia, California, 16 through 18 April. Advanced registration is \$45 up to 15 March, and thereafter, \$50. The price includes all the programs, the Saturday evening banquet and a Sunday breakfast. In addition, there will be the usual hosted cocktail parties on Friday and Saturday evenings. Make your checks payable to International DX Convention and mail to Louise Bloom, KA6ING, 2520 Heather Lane, San Bruno, CA 94066-2643. If you have never been to the biggest DX gathering ever, then it is about time you did.

The Holiday Inn is full, but there are several other accommodations in the area as follows:

Radisson Hotel 800/333-3333
Lamplighter Inn 800/662-6692
Travel Lodge 800/255-3050
Marco Polo 209/732-4591
Parkway Inn 209/627-2885
El Rancho Motel 209/734-9271

Shuttle service will be provided between local establishments. There are also accommodations in Hanford, about 30 minutes west of Visalia.

Amtrak serves Hanford from the Bay

Area with a connecting bus to Visalia if you prefer to leave your car at home.

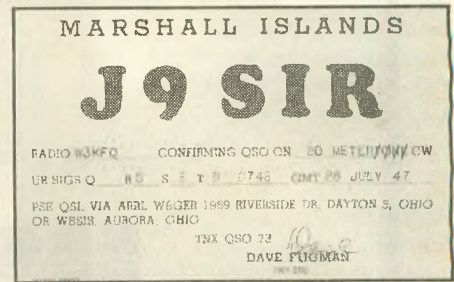
Antique QSLs

In our December 1992 column we included the QSL card of HS1BJ. Fred Laun, K3ZO, who also holds the call HSØZAR, reports that the 1937 operator of HS1BJ, Sangiem Powtongsook, is still very much alive. His personal call has been HS1PJ since Thailand legalized Amateur Radio about five years ago. He is retired from the Posts and Telegraph Department where he had a long and distinguished career.

Fred says that anyone wishing to contact him can reach him at 387 Pranonk Road, Ban Changlaw, Bangkok

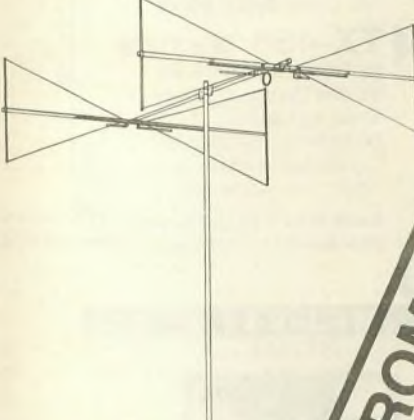
Noi, Bangkok 10700, Thailand. He has been instrumental in the recent growth of Amateur Radio in Thailand during the past five years.

We dug through our files and found two from the collection of the late Clarence Fry, W3KFQ, submitted by Joe



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
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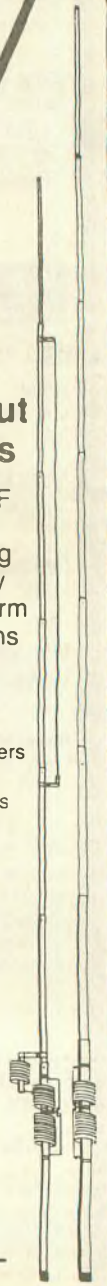
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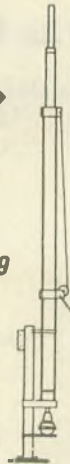


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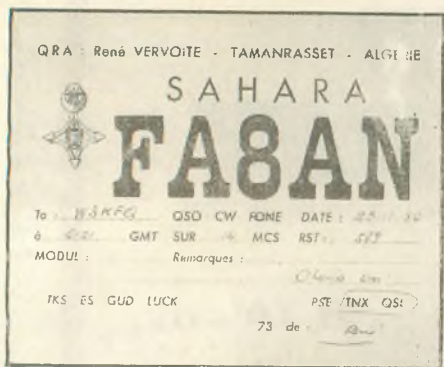
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McConaghy, K3JGJ.

The first card is for a contact that Clarence made via 20M CW back on 26 July 1947 with J9SIR in the Marshall Islands. The operator was Dave Fugman, whose home call was W8SIR. At



the time the prefix was assigned to Japan, and most likely the Marshall Islands had yet to be reassigned with the KX6 prefix when they came under the US Trust. The present prefix for this one is V73. We ran the same QSL card in our May 1985 column.

Nine years later Clarence worked FA8AN in Algeria on 23 November 1956. The operator is given as René Veroite with the contact made on 20M CW. René is not listed in our 1954 *Callbook* and we do not know his previous call. Algeria now has the 7X prefix.

DXing in 1932

We received an interesting letter from Milton "Pete" Peterson, W7AUQ, of Roseburg, Oregon. Pete writes, "The QSL of XU8RR, (Antique QSLs, November 1992), reminded me of several contacts that I had with XU8HW on 80M in April 1932. April was an especially good month for DX, and it was in the early part of the month that I worked XU8HW in Shanghai. On the 10th, I worked J1DO, followed by ZL2LB on the 11th and VK2RB on the 13th. ZL3DZ sent me a card informing me that he had wasted a lot of power calling me on the 15th to the 17th. He wanted a QSL. I worked ZL1GX on the 16th and again on the 17th. The following day I an-

swered ZL1GZ's CQ and we had about a half-hour chat. We exchanged cards, photos and corresponded briefly. I found his card in 1970 and found that he was still listed in the *Callbook*.

"When I answered XU8HW's CQ, he came back with a Q5 report. He said that he heard me several times but didn't think I could reach him on 80M. He told me that he was a Seventh Day Adventist missionary stationed in Shanghai and had been looking for an Amateur station—on 40 or 80M—who could relay his messages to the church office in the civic auditorium in San Francisco. We set up a sked and it worked—almost without a hitch—until he located a ham in the city who could phone traffic direct to headquarters. HW (his initials) was full of questions. What kind of power was I running? Did I have a super antenna, where was I located and what was my profession? I told him that I was an airways weather observer, stationed at the airways weather station located in an annex to the Siskiyou Summit Lodge, located at the summit of the Siskiyou Mountains, about 17 miles south of Ashland, Oregon, along the Pacific Highway, (now Interstate 5). The lodge was a huge two-story structure of native logs. In addition, there were a half-dozen tourist cabins, a Richfield Beacon and service station. I lived in a small cottage, in a stand of firs, on a knoll above the station. It was a beautiful place in the summer, but the winters were long and nasty. One winter we had 22 feet of snow and my shack was buried and I had to tunnel out to the office. I believe that was the winter Donner Summit reported 40 feet of snow, (how about a record 819 inches in 1937? —N6JM). The lodge and cabins were filled with stranded motorists, sometimes for days, until the highway was cleared.

"All of my gear was homebrew. The transformers were hand-wound. The crystal was ground from valve grinding compound. My receiver was the usual regenerative detector and one-step of audio. My rock-crusher was a '47 driving an 865 final with about 25W input. I had several antennas but my favorite was a sloper-Windom.

"I do not know how many QSLs I

handled for XU8HW before he made other arrangements and the office no longer had to send me an SASE each week. I received a warm letter of appreciation for services I had rendered."

Thanks, Peter, for the interesting letter from the old days. Pete is 87 years of age and built his first crystal set 70 years ago. He is still involved with QRP projects and says his hands are getting a bit shaky and has trouble soldering printed circuits.

QSL information

Gennady Kolmakov, UA9MA, is frustrated with the mail problems in Russia, and has obtained a QSL manager elsewhere that should benefit us all. Gene now uses the services of DK8FS, who will handle the following 18 calls: 4K2BAZ, 4K2BDU, 4K2OIL, 4K2OIL, 4K2/UV6ABL, 4K4AB, EZ9MA, R9MWS, UA0B/UA9CDE, UA1OIL, UA9MA, UH/UA9MA, UJ/UA9MA, UL9C/R9MWS, UL/UA9MA, UM/UA9MA, UQ/UA9MA and XV9MA. If you have requested such cards in the past from UA9MA, we suggest that you try the DK8FS route.

H.G. Hassan, V85HG, writes that JH7PKU is not his QSL manager as stated in the QSL routes in our September column. Cards should be sent to him direct at P.O. Box 222, Bandar Seri Begawan 1902, Brunei Darussalam.

Helen Landry, NS2G, claims that her QSL request for RO200T mailed to QSL manager G3MTL was returned "addressee unknown." Evidently, the *Callbook* lists an incorrect address. Anyone else have this problem?

QSL routes

3D2AS	—JA2AUP	FM2GO	—FB1MUX
3D2RW	—ZL1AMO	FO/SM0NZY	—SM0NZY
3D2SL	—P29DX	FT4WD	—F6AXX
3D2ZG	—JH9XZG	FW/KG7XE	—J11NJC
3D2ZL	—JA2CZL	GD0PWW	—W3TB
4J2FM	—OH2LVG	H27W	—5B4WN
4J4GAT	—DL1VJ	HD3W	—HC3AP
4K1YAR	—UA3YV	HF0POL	—SP9DWT
4K5ZI	—DF8BK	HH2HM	—FD1RUQ
4M2T	—CT1AHU	HK0/AA5AU	—AA5AU
4M5X	—YV5ARV	HK0/KB5GL	—KA6V
4N4AT	—KA9WON	IR3MD	—IN3PFE
4N4XA	—KA9WON	J79MAE	—DL5MAE
4N4RB	—YU5KTC	JW9XG	—LA9XG
4N5PK	—YU5XVD	JX3EX	—LA5NM
4N5RQ	—YU5CEP	JY8VJ	—DL1VJ
5H3YT	—JK1HSQ	KC4AAA	—WB3CQN (see note 1)
5W1SL	—P29DX		
5X5WR	—DJ5RT	KC6/DL1VU	—DK5EX
5X5WR	—DJ6S1 (CW only)	KH0AM	—J1CCKA
6V6U	—K31PK	KH5/DL1VU	—DJ9BC
8P9DX	—VE3ICR	N6QHO/D2	—N6QHO
8R1K	—OH0XX	OT2T	—ON6TT
9A1HDE	—YU2HDE	P4/K5BDX	—NA5U
9J2KY	—JA8XPX	P4/W1EK	—AA1M
9M6NA	—JE1JKL	P40J	—WX4G
9X5AB	—DF3ZJ	P40USA	—NA5U
9Y4H	—K7NA	P40W	—N2MM
A35IG	—JA3IG	PJ4/WG31	—G4FRE
A35JA	—K8JA	PQ1V	—PY1DEA
A35JE	—K8JE	S21ZG	—W4FRU
A35VG	—P29DX	S51ND	—YU3ND
C6AGN	—KA1DIG	S51NY	—YU3NY
CE0Y	—K6VNX	S57AM	—YU3AM
CE3CJ	—JA3GIV	S79S	—KQ1F
DU1/DL1VU	—DL1VJ	SQ1B	—SP1AEN
EA8EA	—OH2MM	T30CT	—DL1VU
ED6DXX	—EA5CZ (CW)	T31AF	—DL2MDZ
ED6DXX	—EA5KW (SSB)	T32BE	—WC5P

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T32VU	—DJ3TF	VS6FN	—AB4MD
T33VU	—DL4YAH	VS6WO	—K9EC (see note 3)
T5CB	—KA1PM	XE1KK	—XE1XMT (see note 4)
TJ1GG	—I2EOW	XQ0X	—CE3ESS
TL8NG	—WA1ECA	XX9TRF	—K2PF
TR8JH	—W3HCW	XX9TSW	—KU9C
TU4SR	—OH8SR	YB7LGA	—KA6KKN
UI8AA	—G3SWH	YI1RM	—JY5HH
UJ8JI	—IK8HHX	YN0YN	—KN9P
V2/VE3BW	—VE3CPU	ZA1BK	—JA1HGY
V31JP	—K0GHH	ZC4BG	—N7BG
V31RO	—JH1ROJ	ZC4GE	—K7GE
V31VB	—K16IM	ZC4MF	—KC7V
V47FV	—N3JCL	ZC4POC	—GM3YTS
V63AK	—JG1EGG	ZC4SXW	—G3SXW
V63FB	—JF2RZJ	ZC4VT	—K5VT
V63HN	—JG1EGG	ZC4Z	—AA7NO
V63HS	—JG1EGG	ZF1A	—ZF1E
V63KM	—JG1EGG	ZF1JE	—VE7FJE
V63SM	—JQ3EEL	ZF2AH	—W6OSP
V63VU	—DB5UJ	ZF2QM	—WA6VNR
VE2CSI	—KQ8M	ZK1AZY	—SM8NZY
VK9NY	—JH5OWN	ZK2XG	—P29DX
VP2EX	—N6DLU	ZK2XI	—JA3JM
VP8GAV	—CM0LVI	ZK2XJ	—JA3JM
VP8VN	—G4LZG	ZL7AMO	—ZL1AMO

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The numbers listed in each section are the average Maximum Useable Frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio De Janeiro. Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in parentheses for poor. UTC in hours.

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	(16)	11	18	*11	*17
10	(15)	10	*17	(10)	*16
12	(24)	10	*16	(15)	24
14	33	*14	*24	21	*31
16	36	(13)	23	21	*34
18	*36	(13)	20	18	*36
20	30	(20)	(23)	(13)	*37
22	25	23	30	(12)	*36
24	*21	(20)	34	11	*30
2	*19	(14)	28	11	*25
4	*18	(12)	22	10	*21
6	(17)	(11)	19	10	*19

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	16	(11)	(17)	*11	*18
9	15	10	*16	(10)	*17
11	30	10	15	15	23
13	36	11	*30	*21	*29
15	*38	(11)	25	*22	*33
17	*38	(10)	21	*20	*36
19	*33	(10)	(19)	15	*37
21	*27	(20)	(27)	12	*37
23	*21	(20)	32	11	*31
1	*19	(13)	23	11	*26
3	*17	(12)	(20)	10	*22
5	*16	(11)	(18)	10	*20

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(13)	*13	*18	(10)	*17
12	(12)	*13	*17	(10)	16
14	(18)	*13	*16	(15)	31
16	(26)	*13	*23	19	*34
18	28	(13)	20	(15)	*36
20	29	20	(23)	(12)	*37
22	25	*28	29	(11)	*37
24	21	*29	34	(11)	*33
2	*19	25	34	10	*26
4	*15	17	26	10	*22
6	(14)	15	23	*12	*19
8	(13)	*14	20	(11)	*18

3D2ZC—Martin Bayes, P.O. Box 620674, Newton, MA 02162
 9X5HG—Hartsut Guspert, P.O. Box 420, Kilgali, RWANDA
 FW/G4DZC—Martin Bayes, P.O. Box 620674, Newton, MA 02162
 HL0BTQ/5—P.O. Box 559, Pusan, KOREA
 HZ1PS—P.O. Box 8653, Riyadh, SAUDI ARABIA
 LX/OH2PQ—Kari-Pekka Aho, Hauptstrasse 2, D-2246 Norderheistedt, GERMANY
 LX0RL—Kari-Pekka Aho, Hauptstrasse 2, D-2246 Norderheistedt, GERMANY
 TR8NSY—P.O. Box 1826, Libreville, GABON
 V73B—OKDXA, P.O. Box 88, Wellston, OK 74881
 V73EX—George Beckley, P.O. Box 1258, Maunabo, HI 96960
 V73S—OKDXA, P.O. Box 88, Wellston, OK 74881
 VS6AI—Robert D. Shankle, Jr. (AL7NO), P.O. Box 269, Delta Junction, AK 99737

I think much of the fun and challenge has been lost. If you missed W7AUQ's story of DXing 60 years ago, please go

back and read it. I think you will enjoy it. That was one year before your DX editor was born! 73 de John, N6JM. WR

KH1 DXpedition

The 1993 Howland Island (KH1) DXpedition is underway for the dates of 26 January through 2 February. Operating target areas are Europe, WARC bands and the low bands. Setup is to include four 2 kW HF stations, one satellite and one 6M station. Equipment used will be three 3.5 kW generators; five HF Kenwood rigs (TS850/AT and TS450/AT); four HF amplifiers (Alpha 89); one complete stellite and one complete 1 kW 6M station, Battlecreek special for 160/80M, two vertical phased arrays for 40/80M, four-element monobanders for 10, 15, 20M; two tribander Yagis; one WARC Yagi; and one all-band vertical. Participating operators include

W0RLX, K9AJ, W9IXX, F6EXV, K4UEE, G4LJF, W0CP, PA3DUU, K0EU and ON6TT. Operating budget is \$75,000, and each operator is to pay \$5,000; \$25,000 is still being raised through sponsorship. Contributions are being handled by Burt Myers, W0RLX, 5080 East Quincy Ave., Englewood, CO 80110. WR

Notes:

1. This route applies for YL operator N0TTJ only.
2. The latest address for this one is 39400 Paseo Padre Parkway, Fremont, CA 94538.
3. The QSL manager for this one has a new address: Michael Zeug, 9N317 Corron Road, Elgin, IL 60123.
4. This is the former call of XE1KK which is incorrect in the Callbook. The address for XE1KK/XE1XMT should read: Ramón Santoyo V., Ap. Postal 19-564, 03901 México, D.F., MEXICO.

Many thanks to the following contributors: AL7NO, RB5FF, UA9MA, V85HG, XE1KK, W1/G4DZC, NS2G, K3ZO, KA6ING, W6TUR, W7AUQ, K9EC, The Salt City DX Association (KB2G), Western Washington DX Club (WA0RJY), American Radio Relay League (K5FUV), CQ Ham Radio, The DX Magazine (VP2ML), Long Skip (VE3IPR), The W6GO/K6HHD List, The Long Island DX Bulletin (W2IYX), QRZ DX (W5KNE), and The DX Bulletin (VP2ML).

One thing we don't appreciate today is how DXing was prior to SSB and the super radios we have. With packet radio, spotting nets, list operations, etc.,

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Base verticals for mobile homes

If you own and travel in a mobile home, chances are you do most of your high-frequency, long-range communicating once you get out to the campsite. And like all good hams, you want your HF signal to sound just as loud as if you were operating from your home QTH with your three-element beam! Sorry folks, no vertical antenna is going to achieve the 4 or 5dB gain you can get with a big beam, but there is a way that you can keep from slipping below zero dB by going with a monster mobile-at-rest HF antenna.

Home-station, multiband vertical antennas are between 15 to 25 feet long and offer at least 3-5dB gain improvements over shorter mobile whips. Keep the little mobile whips for when you are driving your car or zooming down the open highways where a big base-station antenna on your mobile home would be out of the question.

At rest, the sky is the limit! Take it from Bob, KC6NTX, and Tommie, KC6NTY, Speik, who have developed a mobile-at-rest HF vertical base antenna system that out-talks almost anything else its size and goes together in just minutes.

"We can get this up in the air in less than 10 minutes," smiles Tommie as she and Bob slip everything together and tighten up the works with a simple red-handled nut driver. They chose the Cushcraft vertical antenna because of its rigid construction and its relative broad-band characteristics. Cushcraft has just announced a new



The first step is getting the antenna assembled on the ground.

10-pound, 10M through 80M vertical, the AP8A, and they will be working with this antenna shortly.

WARNING: Never install a vertical antenna near overhead power lines. Never attempt to install any vertical antenna within 50 feet of any type of power lines or telephone wires. *You could be killed if the metal antenna comes in contact with live wires!*

To underscore the importance of this cardinal rule, Bob and Tommie run an extensive safety check to make sure that their antenna system may be put up with complete safety—including the use of protective safety glasses and a hard hat during the actual elevation of the vertical antenna. No one is allowed within 50 feet of their work area without the proper safety equipment.

Although the Cushcraft R7 antenna does not require an additional ground-plane, a good surface area is obtained by using the metal skin of the mobile home as the counterpoise. This also reduces the amount of RFI from the computer down below.



The assembled Cushcraft antenna is hoisted aloft.

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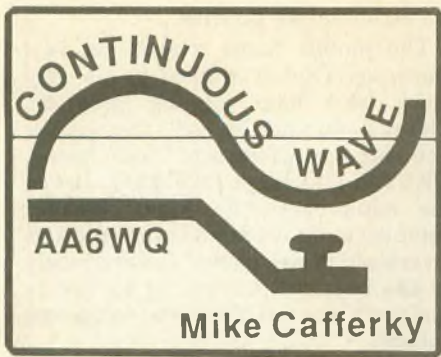
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Observations from Handi-Hams

"The biggest challenge I have is in convincing them they can pass the test," says Dave Rutledge, W9KRQ, a volunteer code instructor for the Handi-Ham Radio Camps.

"My main job is boosting their confidence," agrees Dave Block, KA0VCW, the other volunteer CW instructor at the camps. Learning Morse code appears to most people as a significant mountain to climb on their way to broadening their operating privileges on the amateur bands. To a physically challenged person the task can at first seem almost impossible to achieve. However, once these students begin believing they can achieve, there is almost nothing which will stop them.

Consider the variety of situations these and other volunteer instructors face in helping Handi-Hams learn code: a blind and illiterate young man interested in participating in radio; a young paraplegic woman determined to enhance her communication skills; an older man who suffered a stroke

but who always wanted to be an Amateur Radio operator; a young man with cerebral palsy who has learned to communicate with near perfection using Morse code; a blind and deaf young man who learns code using Braille-related technology. You may have guessed where I am headed with

this: If they can succeed in code, why can't we? True, but there's more to the story than just moralizing.

As most readers may know, people who have profound learning challenges may apply for an Amateur Radio license and have the code requirement waived. They may also become a part of the Amateur Radio community through the no-code Tech license. While there are some students who exercise these options, many participants in the Radio Camp are interested in continuous wave and want to learn code like everyone else. They show a high level of gumption and desire to enter the ranks in the traditional way. "The key ingredient from the student's point of view," says Dave Rutledge, "is motivation."

CW at Radio Camp

Students come to camp on referral from an educational counselor or other interested Amateur Radio operators. They spend the week at a camp which is staffed and outfitted for a variety of campers and their needs. Many of the radio teachers and technicians are volunteers who get their reward simply from the positive experience of helping others succeed.

The volume of campers who study Morse code varies by the make-up of the group. If there are a lot of unlicensed campers, five or six may

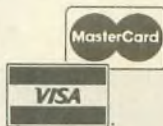


Frank Stelter, N0PTA, 85, and Harry Weber, N0PXQ, 12, learned code together at Radio Camp and earned their Tech Plus tickets.

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Everything is well-bonded, including the exhaust pipe system, to insure a low noise ground.

Coax cable is attached to the base of the antenna, and RG214 double-shielded cable is used for maximum noise suppression. The base of the antenna slips into a permanently mounted 8 ft. aluminum tube, securely bolted to the vehicle's frame and to the adjacent aluminum ladder on the rear. The mounting pole telescopes inside itself when the base antenna is not in use.

"The only hard part is the few seconds in getting the base of the antenna up and over the grounded mounting tube," comments Bob, KC6NTX. Bob wears a safety harness to insure the wind doesn't come up and take both him and the antenna off the roof! "It's a little bit unwieldy, but I've never had a problem getting it up and over the mount," smiles Bob.

After the antenna is secured in place, his rig down below is ready to jump to life. Bob purposely has the power and the mike completely off the rig during antenna installation to make absolutely sure he conforms to

The base of the antenna slips into the mast and is tightened up.

his strict safety policies.

The mobile home transceiver is a Kenwood TS-440 coupled to his computer and ham logging program. Thanks to additional transceiver grounding provided by Jerry, KK6YO, and Linda, KM6KQ, Davis, the equipment runs clean without computer interference on receive. Oversized power cables, fused directly at the battery, provide up to 12V to run the Kenwood TS-440 at full power output.

During repeated tests between the tall home antenna and roof-mounted mobile whips, both transmission and reception were many times 2 and 3 S-units in favor of the base antenna to DX stations all over the world. But for local coverage within 2,000 miles, even the small whips did a very nice job of performing within 1 S-unit of the big base antenna.

So if you're looking for mobile home worldwide DX, and you are parked in an area with no overhead power lines, then consider adding a home-style base antenna to the rear of your mobile home. And if your mobile home is mainly fiberglass, consider the Cushcraft R7, which does not require any further groundplane. When properly installed, it will really give your mobile home signal a big boost. WR

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sign up for code instruction under the leadership of "the two Daves." If many of the campers are already licensed or have already achieved their goals in Morse code, there will be fewer code students.

Learning radio theory at the Radio Camp can be done in small groups, but code instruction is accomplished one-on-one. Dave Block, a volunteer with Handi-Hams since 1984, uses an MFJ keyer and Bencher paddle in his instruction as he leads campers one letter at a time. He helps students find ways to make their copying skills more efficient with the technology most appropriate for each.

Dave Rutledge, a former personal student of the famous Farnsworth, uses a keyboard and the Farnsworth method for his tutoring sessions. As students progress, Dave begins using audio code tapes which have been generated by a computer to simulate test conditions. He reports that students enjoy the tapes because they have real-to-life QSO conversations at speeds which prepare them to advance to the next higher level of testing.

Dave is skilled at using the Braille writer instrument as well as the Braille slate and stylus system machines which help an operator decode dits and dahs into alphanumeric Braille characters. The Braille writer has six keys and a space bar used for creating the raised bumps on paper characteristic of the Braille code. Dave knows Braille code and can easily check for copying errors by reading the printout created by the Braille writer equipment.

Quadriplegic radio students present another interesting challenge: sending Morse code without the use of their hands or feet. The most common solution seems to be electronic keyers modified with microswitches moved by air pressure. These "puff and sip" (sometimes called "huff 'n puff" or "sip 'n blow") systems, using ordinary drinking straws linked with pressure-sensitive microswitches, assist the radio operator in keying his rig with carefully timed inhalation and exhalation.

"We get very bright students at the camp," comments Dave Block, an eight-year veteran at teaching Handi-Hams. "The learning challenge our students face is not because of mental deficiencies. They sometimes don't believe they will be able to do what

Morse code demands of them, but they do achieve," he adds. They simply have more of a challenge in encoding and decoding Morse data. The various modified keying and copying devices seem to be simple interface hardware which, when coupled with their own mental processes, become efficient communication modems.

When asked if there are students whom he has *not* been able to help because of the significance of their learning challenges, Dave Rutledge quickly says, "No. All of the students make progress. There are some who do not pass the code test the first time just like anyone else, but they all make progress. We have technicians who can make modifications to their code keyers. This is an additional encouragement. We all give constant encouragement and we always see results."

"Some students may have to learn code in an entirely different way than do others," adds Pat Tice, WA0TDA, who writes about the Handi-Hams for *Worldradio*, "but they continue to learn code and achieve their Amateur Radio goals. Just like in the rest of society, there are some Radio Camp students who have a little easier time than others learning code. But those who really have the desire to learn it do so." WR

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Loose ends

When you think about it, winter is a great time of year. Lower-frequency DX is usually pretty good, and when it isn't you can always curl up with a warm soldering iron and catch up on some construction work. It's also a good time to study for a license upgrade; to introduce a friend to Amateur Radio; to learn more about electronics or computer programming; and to do all sorts of other things that don't require ideal weather. In short, it's a great time to catch up on all the loose ends.

One of those loose ends might be to organize your junk box. Here are a few suggestions:

If you're first starting to get organized, then separate all the parts. All resistors should go into one pile, all capacitors into another, all hardware into a third, and so on. This helps make things manageable, because later you will want to sort components into even smaller groups. The piles of resistors and capacitors, for example, can be further sorted into smaller groups based on their ratings or multiplier values.

Once parts are sorted they need to stay that way. How is up to your imagination, but I've had success using plastic hardware bins, coffee cans, baby wipe boxes, and stackable plastic trays. I try to stay away from cardboard boxes and containers made of glass—one falls apart and the other breaks too easily.

Coin envelopes are ideal for storing smaller, one-of-a-kind items, like individual diodes, ICs and transistors. If you write their contents on these small (2¼" x 3½") envelopes, you can find a component in no time.

You might even want to computerize your inventory. If you don't already have an inventory program for your computer, then check several of the better BASIC manuals for help. They might even show you how to tailor a program to your own particular wants and needs.

Believe me, an organized junk box and a computerized inventory go far to

make hobby expenses a lot more manageable.

More Flashcode

Several readers have asked for Commodore versions of October's Flashcode program. I'm working on it, and should have it done by the time you read this. An SASE will get you a copy of the listing.

Two readers wanted to know how to change Flashcode to use a different number of characters in the data lines. One reader wanted to use fewer characters, presumably so he could practice just the characters he was having difficulty with. The other wanted to add

characters, possibly to give more weight to numbers and punctuation.

The solution is in line 90, where the computer selects a random number and multiplies it by the number of data character pairs (the character and its sound symbol) plus two. In our case we used the 43 standard code character data pairs, so our multiplier was 45 (43+2).

If you want to modify the program to increase or decrease the number of code characters, then change the "45" in line 90 to correspond. For every character pair you delete, subtract 1 from 45 and, conversely, for every character pair you add, add 1.

Here's another trick: If you are still having difficulty associating the sounds of the characters to their visual symbols, then try repeating each character several times in succession. The following five lines add this option to the program:

```
65 Q=0: R=0: INPUT  
"REPETITIVE (Y/N) ", A$  
66 IF A$="Y" OR A$="y" THEN  
Q=1  
211 IF Q=1 THEN R=R+1  
212 IF R=5 THEN R=0: GOTO 220  
213 IF Q=1 THEN 120
```

The change will allow each character to be sent five consecutive times before the program selects the next random character. If you don't like five, then change the R variable in line 212 to whatever suits you best.

Antenna gain

In December's issue we covered a simple BASIC program to see how we could predict the directivity and gain of inexpensive longwire antennas. Here's a trick for squeezing out another theoretical 3dB of gain with nothing more than a second piece of wire. The trick is to run the second wire in such a way that the major lobes of both wires reinforce each other.

This type of antenna is called a V-beam, and is nothing more than two longwires spread out in a "V" shape and fed out-of-phase at their apex. When the angle between the two wires is twice the angle of a single wire's major lobe, the lobes overlapping at the center of the V will reinforce each other, providing twice the apparent power of a single lobe alone.

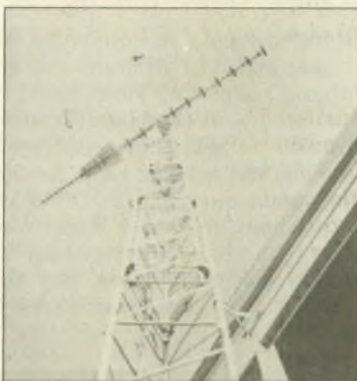
The impedance is close to 600 ohms, and a 3:1 balun transformer should provide a close match for 50-ohm coax. The far end of each leg should be terminated through a 300-ohm resistor to ground. Figure 1 illustrates the antenna and the theory.

The additional 3dB is only available for the design frequency, but the antenna still retains its broad bandwidth for most other bands.

Another experiment with a V-beam



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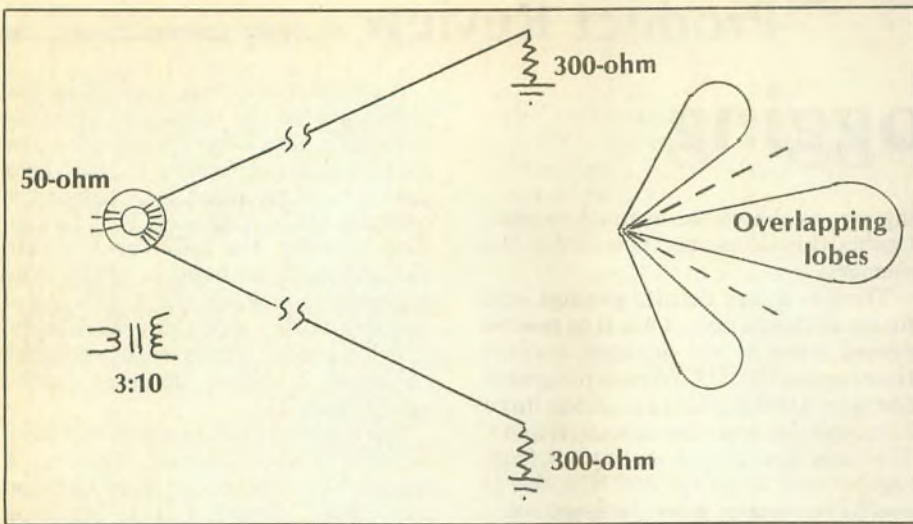


Figure 1. V beam antenna: (a) shows feed balun and terminating resistors, with the angle between legs equal to twice the angle formed by a longwire's major lobe; (b) shows how major lobes overlap at axis, providing additional gain.

antenna is to determine the apex angle for half-length legs, then bend the legs at their midpoints so that their far ends almost converge. A terminating resistor, typically 300-ohm or so, connects the two ends.

If this antenna looks familiar, it should. It's called a rhombic.

Wire trivia

Geo Singleback, K4HXM, submitted a formula for converting AWG numbers to wire sizes in inches diameter. Unfortunately, a key BASIC symbol was omitted when the formula was printed, and it caused some grief for several people. But, in a way, it was a fortunate error because ARRL Technical Advisor John Bittinger, WA7FBW/AA, wrote with an interesting synopsis of the basis for AWG sizes.

He writes that, according to the *Standard Handbook for Electrical Engineers*, the formula is derived "... by using the specific diameter of a #0000 AWG conductor (0.4600"), the specific diameter of a #36 AWG conductor (0.0050"), the 39 incremental steps between these two conductor sizes, and the law that the 38 intermediate diameters are formed by geometrical progression.

What this boils down to is that the ratio between consecutive wire sizes is (0.4600/0.0050) \wedge (1/39), or 1.1229322. In other words, most AWG diameters can be found by referencing this ratio to #0000 wire by using the formula .4600/(1.1229322 \wedge (AWG# + 3)).

Of course, there's a margin for manufacturing error, so any method that figures wire sizes beyond about four decimal places is moot. If we

were using #22 wire as an example, a computer might say the wire is .02534658629 inches in diameter when, in reality, it can range anywhere from .0251 to .0256 inches and still be within tolerance.

Bittinger further notes that AWG diameters apply to the solid conductor only, or, for stranded wire, to the

"equivalent total cross-sectional area of the composite stranding." In any case, the diameter of insulated wire has nothing to do with AWG numbers and is best derived from manufacturers' literature or by direct measurement.

Here's something else to ponder: our European friends use several different wire gauge systems, but the trend seems to be moving toward metric sizes. It probably won't be long before we start to do the same, and you may want to jot down this formula for converting AWG to millimeter diameters for when we do:

$$\text{mm} = 11.6840 / (1.1229322 \wedge (\text{AWG}\# + 3))$$

That should hold the loose ends for a while. Keep computing, and very 73 for '93. WR



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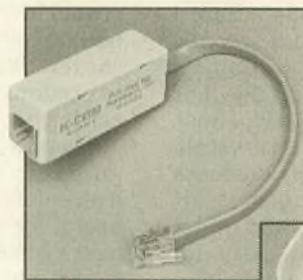
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Portaputer logging

EARL GOSNELL, N7NZ

For the past few years I have been operating Field Day-style with low power from hilltops where I pack in my gear. I wanted the convenience of a computerized log with the portability of a pocket diary. My requirements were well-met with a Casio SF-4000 digital diary. In two years I had only filled a few percent of its 32K memory, when it was stolen. (Fortunately I had QSLed most of what I needed.)

I had become so accustomed to its convenience that I missed it and went to get its successor, the SF-8000 with 64K and added features. Instead I got the nearly identical Radio Shack EC-345 Data Bank Scheduler. With the Casio unit on sale they were both priced at about \$200, but I preferred the physical layout of Radio Shack's EC-345. It had a plastic blister protection for the keys which can be a real consideration in my area's wet climate. For use in the shack, though, I would prefer Casio's keyboard with its positive feel.

One of the EC-345's features is a world clock with time for 127 different cities listed alphabetically. I format it for 24-hour display and specify GMT for "home time" which then is used to run the alarms. I can also select any city for "world time." These are not just the major metropolitan centers but include representatives from every world time zone, such as Chatham Island (GMT + 12.45), Fernando de Noronha (GMT - 2), as well as London (GMT ± 0). Radio Shack's EC-345 has a specified differential of ± 1.5 seconds per day, twice as good as Casio's SF-8000 at ± 3 seconds per day, but mine runs even more accurately, about as well as my expensive quartz watch.

Another nice feature is the business card directory. It arranges itself alphabetically by employer, and under each employer, alphabetically by employee's name. It retains data in several categories and can display these as the whole card or a list of names and phone numbers. I use it to keep track of cities and time zones. I enter two-letter country prefixes into the place for employer, e.g. K#, KH6, VE, and then list the name of the city (NY, SF, etc.) with its zone (-5, -8). This way I can check any country I QSO to see which city I can access for my world clock. Or I can search for the city itself or do a random search to get a list of cities for a particular time zone. Us-

ing care to abbreviate as much as practicable, this takes only 3 percent of the memory.

There is a user defined prompt area for six category cues. I use it to remind myself when to set daylight savings time for the US, UK, Western Europe/former USSR, China, Southern Hemisphere, and Equatorial Region. This user area does not subtract from regular user memory, and how else is one to remember when to reset some 100-plus clocks on differing dates?

Now, the heart of its usefulness as a logbook is the scheduler. This was designed to keep track of daily appointments which are stored chronologically as they are entered by time on a specified date, with untimed entries listed on top of the date page. I list general log data there—band, QTH, etc.—and then QSO data starting with time and call. This makes it easy to search back for any call to see whether I worked him before. It is also possible to do a random search, say, for a certain city to see who is there in my log.

The name of the game is memory conservation, so it pays to develop your own shorthand. Try to abbreviate as much as possible without reducing the record to gibberish. I use the plethora of symbolic keys to represent antennas, a karat for an inverted V, an arrow for a beam, etc. One picture is worth a thousand words. The rig brand gets a single capitalized initial, and no power is listed unless it is different from 100W. Eventually old data can be erased in blocks. Important entries can be marked to avoid being erased with the rest. They can be erased individually or unmarked when you get the QSL card.

There is a secrecy function which can guard any data in a separate area with a user defined password. This would be useful for clandestine operations. The parks where I operate have a lightly enforced curfew earlier than the band closes, but you will not find any after-hours operation in my log, as you do not know my password.

Where's the Fun?

The 10 meter test had started, and I expected the band to open about the time I arrived at the motel. Rig and gel cell were in the trunk. Maxi-J was right beside. I rolled up inside the launcher pail. Room with a view. Maxi takes off from the balcony sloping down to a tree. His tail slips under the door. And I'm 59 in Japan.

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A calendar function is useful in conjunction with the scheduler. Schedule days with data show little marks, one for a.m. and another for p.m., with both dots for untimed data. Any day on the calendar can be enhanced. I use this option to help me monitor log info changes such as band or QTH. An enhanced month will claim six bytes of memory, so do not do this gratuitously. (Casio's model comes with weekends enhanced, I believe, but they can be easily cleared.)

You can also find the number of work days in a given period. That is, it counts the unenhanced days between two dates, figuring it is ignoring weekends and holidays. One might want to use it to calculate the number of days he checks into a net in a given month.

There is a memo function which stores data in the order entered. I use it for important QSL records, erasing them as I get the return cards.

The telephone directory is useful for contests with the sort of single-band operating I do. The list of names arranged alphabetically with their phone numbers makes a dandy dupe sheet of calls and territories which can be photocopied and pasted together. Automatic scrolling makes it easy to eliminate dupes. Additional data can be stored, with it available in the other display mode. If one marks each new multiplier QSO, he also has a read-out of base points and multipliers in the number of data entered and number of marked data.

The secret area can be used for a second band, and brief forays into other bands can be accommodated by the scheduler, but for serious contesting, you cannot beat the business card directory, either normal or secret mode. Use the employer categories to separate the different bands or modes, and the names and numbers will work just like the other dupe sheet, with more data below the surface, of course.

But the real star here is the multiple data editing. You may reserve a key or key combination to stand for something which you can later substitute. For example, you might record an exchange of 599 reports with a "±." Later you can edit the whole business card directory in a single swoop to say, "599-599" in all those places.

The clock has both a daily alarm and a schedule alarm. The latter is used in conjunction with the scheduler and could be useful to signal the start and stop of rest periods during contests.

The calculator uses the whole LCD screen to give the largest display I have ever seen. When I do the math at

the end of a contest, even if I got few points, I end up with a big score!

It also does date calculations. I have a scientific programmable calculator with graphics which I have programmed to give me instant propagation charts to anywhere. I need to input the date, but it uses the number of days since the winter solstice in its calculations. So I just get that from the first calculator. I store the date of the winter solstice in the calculator memory and subtract it from the date I want, giving me the number to input.

But what if you have two or more operating positions and you want to consolidate logs? Hey, no problem! These devices come with a cord that allows you to connect one to another, mix or match. As long as there is sufficient memory left, you may transfer any or all data.

There is also an optional peripheral interface unit available with software allowing one to transfer data to an IBM compatible computer. Casio's model will even go from the interface unit directly to a printer without the

computer. Usually one has a computer with his printer, which is why Radio Shack did not include this feature, but it could come in handy on the DXpedition when one wants to get a printout on the return boat to mail off at the first port and he does not want to risk carrying a lot of expensive computer equipment.

The battery for the EC-345 lasts me two years the way I use it, and it can be replaced without memory loss. And, oh yes, the entire unit weighs five ounces. **WR**



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IC-728 New, All-Band HF	1099.00	Call \$
IC-729 All-Band HF Plus 6 Meters	1419.00	Call \$
IC-2KL 500w, Amp	2079.00	Call \$
IC-4KL 1 kW Amp	7275.00	Call \$

Receivers	List	Jun's
IC-R9000 100 kHz to 1999.8 MHz	5459.00	Call \$
IC-R7100 25 MHz - 2 GHz	1479.00	Call \$
IC-R71A 100 kHz - 30 MHz Rcvr	999.00	Call \$
IC-R1 100 kHz - 1300 MHz	624.00	Call \$
IC-R72 30 kHz - 30 MHz Rcvr	972.00	Call \$
IC-R100 100 kHz - 1856 MHz Rcvr	707.00	Call \$

VHF	List	Jun's
IC-2iA, 2 Meter HT	430.00	Call \$
IC-P2AT New 2 Meter HT	424.00	Call \$
IC-2GAT, New 7w HT	429.95	Call \$
IC-2SAT Micro Sized HT	439.00	Call \$
IC-2SRA, 2m, HT/Scanner	599.00	Call \$
IC-229A/H, 25/50w, 2 Meter Mobile	449/479	Call \$
IC-901 New Remote Mount Mobile	1199.00	Call \$

UHF	List	Jun's
IC-4iA, 440 MHz, HT	520.00	Call \$
IC-P4AT New 70cm HT	467.00	Call \$
IC-4SRA, 70cm w/Scanner, HT	600.00	Call \$
IC-W2A, 2M/70cm NEW HT	629.95	Call \$
IC-24AT New 2m/440 mini HT	629.95	Call \$
IC-41A, 2M, 440, 1.2 GHz, HT	TBA	Call \$
IC-2330, 2M/220 Mobile	821.00	Call \$
IC-3230H Dual Band Mobile	839.00	Call \$
IC-2410H, 2m/70cm, Mobile	889.00	Call \$

220 MHz	List	Jun's
IC-3SAT Micro Sized HT	449.99	Call \$
IC-P3AT, Mini FM HT	419.00	Call \$

1.2 GHz	List	Jun's
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IC-12GAT Super HT	529.95	Call \$

KENWOOD



HF Equipment	List	Jun's
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TS-850S/AT New, All Mode, All Band	1999.95	Call \$
TS-450S/AT New HF Xcvr	1549.95	Call \$
TS-450S New HF Xcvr	1349.95	Call \$
TS-140S Compact, Gen. Cvg. Xcvr	949.95	Call \$
TS-690S HF Plus 6m Xcvr	1549.95	Call \$
TL-922A HF Amp	1982.95	Call \$

Receivers	List	Jun's
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RZ-1 Compact Scanning Rcvr.	599.95	Call \$

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TM-241A 50w Mobile FM	469.95	Call \$
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UHF	List	Jun's
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TM-441A Compact 35w Mobile	479.95	Call \$
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TM-331A Compact Mobile	469.95	Call \$

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FT-990 All Mode "NEW"	2399.00	Call \$
FT-747 GX Economical Performer	889.00	Call \$
FT-890 HF Base w/ 1-30 MHz Rec.	1339.00	Call \$
FT-767 4 Band New	2299.00	Call \$
FL-7000 15m-160m Solid State Amp	2279.00	Call \$

Receivers	List	Jun's
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VHF	List	Jun's
FT-411 New 2m "Loaded" HT	406.00	Call \$
FT-26 Mini, 2 Meter HT	329.00	Call \$
FT-415, 2m, HT	409.00	Call \$
FT-23 R/17 Mini HT	351.00	Call \$
FT-2400 50 Watt, Mobile	419.00	Call \$
FT-290R All Mode Portable	610.00	Call \$

UHF	List	Jun's
FT-76 Mini, 440 MHz HT	359.00	Call \$
FT-815, 70cm, HT	439.00	Call \$
FT-911 Compact 1.2 GHz HT	505.00	Call \$
FT-790 R/II 70cm/25w Mobile	681.00	Call \$
FT-912 1.2 GHz, 10w Mobile	581.00	Call \$

VHF/UHF Full Duplex	List	Jun's
FT-736R, New All Mode, 2m/70cm	2025.00	Call \$

Dual Bander	List	Jun's
FT-470 Compact 2m/70cm HT	576.00	Call \$
FT-530 2m/70cm HT	539.00	Call \$
FT-5100 Ultra Compact 2m/440 Mobile	695.00	Call \$
FT-5200 Ultra Compact 2m/440 Mob	769.00	Call \$
FT-6200 Ultra Comp. 440/1.2 GHz Mob.	899.00	Call \$

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FTR-2410 2m Repeaters	1154.00	Call \$
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ALABAMA

Montgomery Amateur Radio Club (W4AP). P.O. Box 3141, Montgomery, AL 36109. Meets 3rd Mon./monthly, 7 p.m., State Trooper Dist. Office, Coliseum Blvd. & Federal Dr. Nets Sun. 8:30 p.m. 146.84- and Thurs. 8:15 p.m. 147.18+. Info: Fred, K8AJX, (205) 270-0909.

ALASKA

Anchorage Amateur Radio Club, Inc. Meets 1st Fri./monthly, 7 p.m., Alaska Pacific Univ. Carr-Gottstein Cntr., 4101 University Ave., Anchorage, AK. Fred S. Wegmer, KL7HFM, Pres.

North Pole Hamsters ARC. Meets 1st Mon./monthly, 7 p.m., VFW Bldg., Old Rich Hwy. & VFW St., P.O. Box 56424, North Pole, AK 99705.

ARIZONA

Central Arizona DX Assoc. (CADXA). Meets 1st Thurs./monthly, 7 p.m., Salt River Project Pera Club, 1/2 mi. west of 68th & Continental Dr., Scottsdale, AZ. Rptr. K5VT 147.32/92. Packet Cluster nodes (S): 145.09, 144.93, 145.03. Info: Warren Hill, KF7AY, (602) 396-2218.

Cochise Amateur Radio Assn. (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.16/76 rptr.

Scottsdale Amateur Club. Meets 1st Wed./monthly, 7:30 p.m., Scottsdale Sr. Cntr., 7375 E. 2nd St., Scottsdale, AZ. Net Tues., 7 p.m., 147.18 rptr. Info: Barney Fagan, KB7KOE, (602) 861-2817.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08-, 448.550-, & 145.15 Packet).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835.

Amateur Radio Club of El Cajon. WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.080(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info (619) 697-2700.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Fri./monthly, 7:00 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Conejo Valley Amateur Radio Club (CVARC). P.O. Box 2093, Thousand Oaks, CA 91358-0917. Meets 1st Thur./monthly at King of Glory Lutheran Church, 2500 Borchard Rd. Newbury Park, CA, 7:30 p.m. Info on 147.885/285 and 445.925/0.925 (PL 123) or call N6LQ Ernest (805) 499-5398.

Contra Costa Communications Club, Inc., WD6EZR. P.O. Box 20661, El Sobrante, CA 94803-0661. Meets 2nd Sun./monthly (except May & Dec.), 7 a.m., Baker's Square Restaurant in Richmond, CA. Info: Ed Caine, KA6OFR, (707) 996-0962.

Corona Norco ARC, (CNARC). Meets 1st Mon./monthly, 7:30 p.m., St. John's Episcopal Church, 526 Magnolia Ave., Corona, CA. Talk-in 146.535 Simplex. Info: John Miller, NF6Y, (909) 735-0284.

Downey Amateur Radio Club. Meets 1st Thur./monthly, 7:30 p.m., So. Middle Sch., 12500 S. Birchdale, Downey, CA. Wkly nets—Thur., 7:30 p.m. 146.595 (S). For info: P.O. Box 207, Downey, CA 90241-0207.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., Northbrae Community Church, 941 The Alameda, Berkeley, CA. Info: Gordon Firestein, (415) 527-9382.

Fullerton Radio Club, Inc. W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed. ly, 7:30 p.m., Sr. Citizens Center, 340 W. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975 (-600). Info, Bob Hastings, K6PHE (714) 990-9203.

Golden Empire Amateur Radio Society (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, Repeater 146.25/85. Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Room 110B, Chico.

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 447-3815.

Marin Amateur Radio Club (MARC) W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

Monterey Park Amateur Radio Club (MPARC), K6GIP. P.O. Box 403, Monterey Park, CA 91754-0403. Meets 2nd Thurs./monthly, 7:30 p.m., Community Rm.—City Hall, 320 W. Newmark, Monterey Park. Nets: Tues. 7 p.m. 147.48 Simplex — 7:30 p.m. 28.385 MHz. Info: John Duce, N6EDX (818) 280-7052.

Moreno Valley Amateur Radio Assoc. P.O. Box 7642 Moreno Valley, CA 92303. Meets 4th Mon./monthly, 7 p.m., City Council Chambers—City Hall, corner of Cottonwood & Frederick Sts. Net Tues. 8 p.m. 146.655- (PL 1A) Info, Larry Marcum, KA6GND, (714) 656-1643.

Mount Diablo Amateur Radio Club. P.O. Box 23222 Pleasant Hill, CA 94523. Meets 3rd Fri./monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Ln., Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+). Info, George K16YK, (510) 837-9316.

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Elks Lodge, on Cypress at Hackberry in Carmichael, CA. (P.L. 162.2) Net K6IS Thurs., 8:00 p.m. 145.190. 220 Net, Tue. 8:00 p.m. 224.40(-).

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at 907 E. Vermont, Anaheim, CA. (Between Anaheim Blvd. & State College) Call in on 146.550 simplex. Contact Ken Koehechy W6HHC at (714) 541-6249.

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For info contact Lyle, AA6DJ, (916) 483-3293.

Sacramento "Old Timers" Amateur Radio Society and Sacramento Valley Chapter #169 CQWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830.

San Fernando Valley ARC. Meets 3rd Fri./monthly, 7:30 p.m., Red Cross, 14717 Sherman Wy., Van Nuys, CA. Net every Thur., 8:00 p.m. KB6C/R 147.735(-).

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets: 2nd Monday/monthly, 7:30 p.m. at United Way, 1922 The Alameda, San Jose. Net all other Mors., 7:30 p.m. W6UU/R 146.385 +/442.425 + PL 107.2

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 2085, Sunnyvale, CA 94087. (408) 247-2877. 146.76 (-600 kHz), 224.26 (-1.6 MHz), 444.60 (+5 MHz). 2 meter/220 net Mon. 9 p.m. Mtgs.-3rd Fri.

Santa Cruz County Amateur Radio Club, Inc. Meets last Friday/monthly at Dominican Hosp. Ed. Bldg., Soquel Dr., Santa Cruz, 7:30 p.m. Net K6BJ 146.79 Mondays at 7:30 p.m.

Santa Monica—Westside Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Santa Monica Red Cross, 1450 11th St., Santa Monica, CA. Info Net every Tues., 8 p.m., 146.670, -600.

Shasta Cascade Amateur Radio Society (SCARS) P.O. Box 664, Anderson, CA 96007. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm., Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thur., 8 p.m., 51.80/51.30 tx. FM Smpix, call freq. 50.300.

Stanislaus Amateur Radio Assoc., Inc. (SARA). Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus County Admin. Bldg. (lower level conf. rm.), 11th & H St., Modesto, CA.

Tehama County ARC. Meets 1st Fri./monthly, 7 p.m., Sept.-June, CA Div. Forestry Training Rm., Antelope Blvd., Red Bluff, CA. For info: 144.850/145.450 W6SYY/R.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WA6BXN Rptr. 146.137/3.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA.

United Radio Amateur Club K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly except Dec., 7:30 p.m. Monitors 145.52 Simplex 10 a.m.-5 p.m.

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn. on Vine St. in Vacaville, CA. Repeater: K6HIH 147.475 (-1 Meg) PL 127.3. Ph: (707) 448-4633.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92393. Meets 2nd Tues./monthly, 7:30 p.m., Yucca Loma Elementary School, Yucca Loma Rd., Apple Valley, CA. Talk-in 146-940/340, info net Sun. 7 p.m. 146.940/340.

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. (except Dec.) Cambrian School Dist. Office, 4115 Jacksol Dr., San Jose, CA. W6PIY/R. Net Tue., 8:30 p.m. 147.39 +, 223.96.

Yuba-Sutter Amateur Radio Club (YSARC), P.O. Box 1169, Yuba City, CA 95991. Meets 2nd Tues./monthly, 7:30 p.m., Yuba City Police Bldg., 1545 Poole Blvd., Yuba City.

COLORADO

Denver Radio Club. Meets 3rd Wed./monthly, 7:30 p.m., Denver Red Cross, 444 Sherman at Speer. Club net: Sundays, 8:30 p.m. 147.33 MHz.

CONNECTICUT

Middlesex Amateur Radio Society, (MARS), 5 North Rd., Cromwell, CT 06416. Meets Tues./weekly 7 p.m., Portland Methodist Church, Main St., Portland, CT. Novice classes, VE sessions monthly. Contact Jack, WA1K, (203) 347-8745. Rptr. 147.090.

Tri-City Amateur Radio Club. P.O. Box 666, Groton, CT 06340. Meets 2nd Tue./monthly, 7:30 p.m. St. Lukes Lutheran Church at Rt. 12. Novice classes. Info, contact Bob, KA1BB, (203) 739-8016.

FLORIDA

Indian River ARC, Inc. (IRARC), 597 Capri Rd., Cocoa Beach, FL 32931. Martin Andersen Senior Center, 1025 S. Florida Ave., Rockledge, FL. Meets: 1st Thur./monthly, 7:30 p.m.

Platinum Coast Amateur Radio Society, (PCARS). Meets 2nd Mon./monthly, 7:30 p.m., Red Cross Bldg., 1150 S. Hickory St., Melbourne, FL 32901.

Sarasota Amateur Radio Assn. (SARA). P.O. Box 3182, Sarasota, FL 34230. Meets 3rd Thurs./monthly, 7:30 p.m., Sarasota Memorial Hosp. Auditorium.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tue./monthly, 7 p.m., Melbourne Public Library, 540 Fee Ave., Melbourne, FL

Suncoast Amateur Radio Club. P.O. Box 7373, Hudson, FL 34676. Meets 2nd Mon./monthly, 7:30 p.m., First Lutheran Church, corner of Polk & Delaware, New Port Richey, FL. Sponsor of WC2G/Rptr. on 145.35, serving west Pasco County.

GEORGIA

Dalton Amateur Radio Club, Inc. (DARC). Meets 4th Mon./monthly, 7:30 p.m., Old City Park Sch. Bldg., corner of Waugh St. and Thornton Ave., Dalton, GA. Info, Bill Jourdan, N4XOG, (404) 226-3793.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., HELCO Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.760(-), 146.880(-), 147.020(+) and 147.040(+).

ILLINOIS

Amateur Cross Link Repeater Club. 29.680, 52.825, 147.225, 224.880, 921.225, 1292.10 and ATV on 916.25. Meets 1st Fri./monthly, 7:30 p.m. For info call (312) 594-1628. KD9FA Repeater/Chicago.

Fox River Radio League. Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. Meets 2nd Tue./monthly, 7:30 p.m. VEC Xams 3rd Tue./monthly, 7:30 p.m.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m. Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S.; Packet Mailbox 145.07. Info: (708) 535-3496.

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. For info: (309) 685-6698. Rptrs: 146.25/85 & 147.675/075.

The Starved Rock Radio Club, W9MKS. P.O. Box 22, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.72/12.

Tri-Town Radio Amateur Club. P.O. Box 302, Hazel Crest, IL 60429. Meets 1st & 3rd Fri. (Sept.-June). Hazel Crest Village Hall, 3000 W. 170th Pl. Net Wed. 146.49, 8 p.m. Info: (708) 335-9572.

Wheaton Community Radio Amateurs, (WCRA). P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Glen Ellyn, IL. Nets Sun. & Tue. 8:00 p.m., 145.39 MHz.

LOUISIANA

Baton Rouge Amateur Radio Club. P.O. Box 4004, Baton Rouge, LA 70821. Meets last Tues./monthly, 7 p.m., Catholic H.S. cafeteria, 855 Hearthstone Dr. Rptr. 146.19/79 & 28/88. Net Sun., 8:30 p.m., 146.19/79.

Southwest LA Amateur Rptr. Club, Inc. (SWLARC). Meets 4th Tues./monthly, 7 p.m. in the Parish EOC Rm. W5BII/R 146.073/146.013. Net MWF, 7:30.

MICHIGAN

Chelsea Amateur Radio Club, Inc. Meets 4th Tues./monthly, 7 p.m., Society Bank, 1478 Chelsea-Manchester Rd., Chelsea, MI 48118.

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 146.64(-) Call-in: W8JXU Club Call. Net Sun., 9 p.m., 146.64(-).

Michigan Amateur Radio Alliance, (MARA). O-11555 8th Ave. NW, Grand Rapids, MI 49504. Meets 1st Thurs./monthly, 7 p.m., TJ Mfg., 1739 Elizabeth, Grand Rapids, MI. STBY 145.780 + 145.410.

Oak Park Amateur Radio Club. Oak Park Community Center. 14300 Oak Park Blvd. (same as 9½ Mile Rd., west of Coolidge). Oak Park, MI 48237. 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

MINNESOTA

Minneapolis Radio Club. P.O. Box 583281, Minneapolis, MN 55458-3281. Meets 3rd Fri. (exc. June, July, Aug.), Mpls. Red Cross, 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916. Net 147.03(+), 7 p.m. Mon.

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., American Red Cross Bldg., Riverside Drive, Jackson, MS 39202.

MISSOURI

Gateway To Ham Radio Club, N0DN. Young hams of all ages. Meets 1st & 3rd Sat./monthly, 1:30 p.m., Sacred Heart Sch., 10 Ann Ave., Valley Park, MO 63088 (St. Louis) Net Sun., 8:30 p.m. 146.94 rptr. Beginners classes, VE exams, Club station & mtgs. Info: Rev. Dave Novak—Fax (314) 225-1952.

PHD Amateur Radio Assn. Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tue./monthly, 7 p.m. Gladstone Comm. Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri., 7:30 p.m. at Omaha Red Cross near 38th and Dewey Streets. Main 2M Net Sunday night 0200Z on 146.94R.

Pioneer Amateur Radio Club, (PARC). Meets 4th Fri./monthly, 7:30 p.m., Fremont Fire Station, Fremont, NE. ARES net 146.67 19:30 CDT/19:00 CST. Info: Dick Klebe, KB0HEC (402) 721-1326.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m. Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info, Jim Frye, NW70, 456-5396.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 265-4278. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Library, Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 332-9137/332-7343. Meets 2nd Sun./monthly, 7 p.m., Rochester Court House/City Hall. Talk-in 147.57.

NEW JERSEY

10-70 Repeater Assn., Inc. 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs.: 146.10/70, 223.24/224.84, 449.15/444.15.

Bergen Amateur Radio Assoc. (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, VFW Post #6699, E6 Winslow Pl., Paramus, NJ. Nets 28.350 Mon. 9 p.m., 144.400 9 p.m. Wed.

Delaware Valley Radio Assoc. (DVRA). Meets monthly, alternating 2nd Tues./Wed., 8 p.m., Our Lady of Good Counsel Church, West Upper Ferry Rd. at Wilburtha Rd. in W. Trenton, NJ. W2ZQR/146.07/67. DVRA Ham Hotline (609) 882-2240.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remington Ave., Pennsauken, NJ 08109. Jan.-Oct. 4th Wed./monthly, 7:30 p.m. Nov.-Dec. 3rd Wed. due to Thanksgiving and Christmas. Talk-in 145.290 rptr. Club call K2AA.

NEW YORK

Amateur Radio Assoc. of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in 146.955/355 rptr. W2PVL.

Genesee Radio Amateurs (GRAM). N.Y.S. Civil Defense Center, State St., Batavia, NY 14020. Meets: 3rd Fri./monthly, 7:30 p.m. 147.285 + W2RCX.

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. For info call Arnie, WB2YXB, (718) 343-0172.

New York City Rpt. Assoc., P.O. Box 140819, Staten Island, NY 10314-0019. Meets 2nd Thurs./monthly 8 p.m., Eger Nursing Home. Talk-in Rptrs. 146.880/447.375. Info: (718) 998-1088.

Orleans County Amateur Radio Club (WA2DQL). Meets: Office of Disaster Preparedness (CD), West County House Rd., Albion, NY 14411, 4th Wed./monthly, 7:30 p.m., 145.270 – WA2DQL.

PROS, Pioneer Radio Operators Society. Meets: 1st Wed./monthly (except July/Aug.) 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wed., 8 p.m. 145.170/144.57. Repeater KC2JY.

The Radio Club of J.H.S. 22, N.Y.C., Inc. WB2JKJ, P.O. Box 1052, New York, NY 10002. 24-hr. hotline, (516) 674-4072, FAX, (516) 674-9600. Non-profit org. using Ham Radio to enhance the education of youngsters, nationwide. Join us — "Classroom Net", 7.238 MHz, 7 a.m. E.S.T. PSE QSL!

Suffolk County Radio Club (SCRC) Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Wy, Bohemia, NY. Talk-in: 145.21 rpt. Morten Eriksen, KA2UIU, (516) 929-6911.

Westchester Amateur Radio Assoc. (WARA). Meets 1st Thurs./monthly, 7:30 p.m., Scarsdale Town Hall, Scarsdale, NY 10583. All invited. For info call Dan Grabel, N2FLR, Pres. (914) 723-8625.

Yonkers Amateur Radio Club (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.265/865, 445.150/440.150.

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets: Mondays, 28.350 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" — all mouth, no ears.

Rowan Amateur Radio Society (RARS). Meets 2nd Mon./monthly, 7:30 p.m., Ruffy-Holmes Sr. Cntr., 1120 Walnut St., Salisbury, N.C. Info: Ralph, WB4AQK, (704) 636-5902.

Stanly County Amateur Radio Club. P.O. Box 188, Stanfield, N.C. 28163. Meets 4th Thur./monthly, 7 p.m. at Stanly Community College, Albemarle, N.C.

OHIO

Ashtabula County ARC. Ken Stenback, AIBS (964-7316). County Justice Center, Jefferson, Oh. 3rd Tue./monthly. 7:30 p.m. County Rptr., 146.715.

Clyde Amateur Radio Society (C.A.R.S.) Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E Rptr. 447.625/442.625. 444.60 (+ 5 MHz). Net Sun. 9 p.m.

Firelands Area Repeater Assoc. Inc. Meets 4th Tue./monthly, 7 p.m., First Federal Savings of Lorain, Huron, OH. Freq. of Rptr. 146.805/205. Info: Eugene Hutchins, AA8DL, 45 Welton Ave., Norwalk, OH 44857.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., American Red Cross, 121 W. Mulberry St., Lancaster, OH 43130. Info Net every Mon., 8 p.m. K8QIK/R 147.63/03 Rptr.

North Coast A.R.C. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly, 7:30 p.m. at North Olmsted Middle Sch. cafeteria, 27351 Butternut Ridge Rd., North Olmsted, OH.

Northern Ohio Amateur Radio Society (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: Rptr. K8KRG 146.70, DX Alert Rptr. 145.15. "Ohio's Largest General Interest Club"

Springfield Independent Radio Assoc., (SIRA). Call-in 145.45—224.26. Meets 2nd Tues./monthly, 7:30 p.m., Mercy Hosp. and 4th Tues./monthly, 7:30 p.m., Am. Red Cross. Info: Rodney Myers, KB8WV, (513) 399-1022.

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. W8HHF 147.87/27 Rptr. Rptr. info/swap & shop, Sundays, wkly — 8:30 p.m.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.480 at 8:30 p.m.; 7260 at 9 p.m. Rptrs. 146.31/91 and 146.115/715. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Van Wert Amateur Radio Club, Inc. 1220 E. Ridge Rd., Van Wert, OH 45891. Call-in 25/85. Meets 1st & 3rd Sat./monthly, 8 p.m.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thur./monthly, 7 p.m., Bend Senior Cntr., 1036 NE 5th, Bend, Or. Net Sun. 7:30 p.m. 147.06 + W7HF. Info call: (503) 382-1685.

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thur./monthly, 7 p.m., Keno Fire Station. Rptr. 147.32 + W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

Oregon Coast Emergency Repr., Inc. P.O. Box 254, Florence, OR 97439. Meets 3rd Sat./monthly, 9 a.m. for brkfst. Net, Wed. night, 7 p.m., 146.800. Info: 997-2323 or 997-3081.

Umpqua Valley Amateur Radio Club, Inc. 450 S.E. Leland St., Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info: W5PIIR 146.90/30.

PENNSYLVANIA

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly at 7:30 p.m., Shenango Valley Med. Center, Farrell, PA. Net, Thur. 9 p.m. on 145.350 W3LIF, Digi. 145.010.

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Neshaminy-Warwick Presbyterian Church, Warminster, PA. Net on 147.690/147.090 Wed. 8:30 p.m. and 28.450 Sun. 9 p.m.

TENNESSEE

Nashville Amateur Radio Club. Meets 3rd Thurs./monthly at Lock 2 Metro Park, located off Pennington Bend Rd. Grilled hamburgers at 6 p.m., mtg. at 7. Info: Jim Lynn, 1621 Jackson Valley Pl., Hermitage, TN 37076.

TEXAS

Brazos Valley Amateur Radio Club (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thur./monthly, 7:30 p.m., Sugar Land Community Cntr., 226 Matlage Wy., 3 bks SW of Imperial Sugar Co. at HWY US-90A & Brooks St. (HWY 58) in Sugar Land, TX. Talk-in 145.47, 442.5 rptrs.

Sun City Amateur Radio Club. Meets 1st and 3rd Fri./monthly, 7:30 p.m., 3709 Wickham Ave., El Paso, TX. K5WPB 147.240, 443.4 with remote operation on 6M and 10M.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Rptrs: 146.13/73 & 449.55(-)5 T. VE Exam Info: (804) 898-8031, W4RTZ

Virginia Beach ARC. Meets first Thurs./monthly (except July), 7:30 p.m., St. Andrews United Methodist Church, Tuscon & Princess Anne Rds., Virginia Beach, VA 23462.

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m. Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82 rptr. Doors open at 9:30 a.m.

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St., Ravenswood, WV 26164. Meets 1st Thur./monthly, 7:30 p.m., United National Bank of Ripley. Net Mon. 9 p.m. on 146.671.07 WD8JNU/R.


Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76(-) W8VA/R. Info Bud Cyr, KB8KMH (304) 522-1294.

WYOMING

Sheridan Amateur Radio League, 146.82. 926 La Clede, Sheridan, WY 82801. Meets 4th Thur./monthly, 7 p.m., Sheridan College Tech. Cntr.; Saturdays, 8 a.m. at J.B.'s Info: (307) 674-6666, WA7B.

PUERTO RICO

Puerto Rico Amateur Radio Club. P.O. Box 360693, San Juan, Puerto Rico, 00936-0693. Meets every Thurs., 7 p.m., Civil Defence, Rio Piedras (next to AMA & San Francisco Shopping Cntr.). Nets Sun. 9 a.m. on 147.090, 28.450 & 7.250 MHz. Info: Raul Escobar, KP4QL, (809) 765-2745 (daytime).



**Search
And
Rescue
Communications**

Jerry Wellman, WB7ULH
P.O. Box 11445
Salt Lake City, UT 84147

Search and Rescue

During a search for a missing plane in Lander, Wyoming, I recall a deputy sheriff remarking that he couldn't work without volunteers and he couldn't work with volunteers.

During a recent RACES workshop, it was encouraging to hear a sheriff lieutenant praise Amateur Radio operators and tell what a value they were to his county. He said the county commission would be amazed if a dollar value could be accurately placed on the benefits of amateurs' volunteer efforts.

Yet in other areas of the country emergency service volunteers don't get along too well with public agencies. A key to this may be in how the sheriff's office treats their Amateur Radio volunteers. The lieutenant said the communicators are treated as unpaid employees and given the same rights and privileges afforded paid staff. And, he said, these volunteers are held to the same standards and are subject to the same discipline.

Setting standards

I think we, as volunteers, often stand up and want to be counted but are not willing to accept the standards or put

in the time to meet agency requirements. It does take a lot of effort to meet standards—but standards are meaningless if they are not enforced.

In one area volunteers were upset that the city organized its own program—apart from “established” volunteer groups. The established group wanted to keep control and set its own standards but the city had other ideas. Without any accountability, the group did a very poor job. Another area has such a good working relationship that untrained or unannounced volunteers are not used—a policy literally enforced by the sheriff.

There are two suggestions that I've raised in past columns that seem to work in getting a quality volunteer program going. The first is to abandon the “gonna do it” philosophy and just do it. The second is to make as much personal contact as possible between volunteers and agencies.

The “gonna do it” groups are always waiting for a) lots of money; b) lots of new equipment; c) someone else to do it; d) better weather; or e) more time. Whether it's an antenna project or a grab-and-go kit or a 72-hour kit, it won't get done until sometime after you start. The key word here is “start.” At some point you have to say let's get started with what we have. It may not be ideal, but it's better than nothing and much better than making more promises.

The second suggestion, personal contact, means you're out shaking hands, attending meetings, getting involved and participating. It's not good to see the hospital emergency director once a year or just send newsletters to the fire dis-

patch center. Make regular visits, keep in touch, volunteer to help or simply listen to what's going on. Several things are accomplished: They get to know you, they realize you are interested and they become interested in what your group is doing.

Letter from Steve

I sure love to get letters from readers. First it demonstrates you're reading *Worldradio* and, second, it shows you're thinking and are forming opinions.

Don't ever assume that as a columnist I have all the answers (or the best answers). You may use an idea here and make it better, or use an “opposite” idea because what I've written won't work for you.

Steve Wilson, KA6S, wrote a superb letter concerning job descriptions. Steve is the ARRL section manager for the Santa Clara Valley, California, area. (His section, by the way, has produced a super response manual that's one of the best collections of good ideas and common sense I've seen.) If you recall I advocated not having job descriptions and that you should limit written policies in favor of encouraging members to use (and develop) their own common sense and gain experience.

Steve makes some good points regarding job descriptions and policy manuals. For him (and he's lived through earthquakes and fires), having things spelled out makes it easier when dealing with “the out of the woodwork factor,” or those operators whose response training has only been learning how to operate their radio.

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When the event is extensive, when you've got a lot of new volunteers or when the event has lasted for days and your experienced people need a break, there are times the less experienced will be used. I agree. Steve points out that the untrained shouldn't be put into hazardous duty, but that places be found where these eager folk can contribute.

Their response manual was prepared so appropriate pages could be given these new folks during an emergency, giving them a starting point and allowing them, in essence, to gain some experience.

I think perhaps my premise of having no job descriptions wasn't explained very well. I mention Steve's comments so I can revisit the job description statements and perhaps explain. What I see happening during events and exercises is an avoidance by many to think, make decisions, or use common sense on their own. Volunteers are scared into doing only what's in the job description—nothing more and nothing less. These written policies become an excuse for not thinking.

In Santa Clara Valley, their manual doesn't "scare" me into not thinking. As Steve wrote, their manual's purpose was to give a *starting point*. He has 500 registered volunteers to deal with and

a lot of turnover as volunteers come and go. Having a manual that documents what others have learned, in my mind, isn't a true "policy" manual. The Santa Clara manual is full of wisdom, hints, guidelines and suggestions. There are few (if any) specific prohibitions or very narrow "job descriptions."

When I advocated having no job descriptions, it was after a call (and letter) from Florida outlining some "possible problems" and a desire to prohibit just about any form of initiative. This often happens in an organization when leaders lack experience and wisdom. They want to control everything and be consulted on every action. Members are afraid to act outside of the narrow guidelines, and meetings are often dominated by "thou shalt nots" rather than allowing members to offer suggestions and ask "what if?"

Allowing volunteers to move from a starting point and gain experience (guided by leaders) is the best thing you can do in emergency service. As your members progress and you give them responsibility, hold them to standards (not rigid policies!) and afford them privileges—you'll see some exciting growth and readiness occur.

Other letters

Recent letters have come from San

Diego, Montana, Hawaii, Wyoming and Georgia. In the coming months we'll explore some commercial battery packs (for grab-and-go operating), some packet ideas from Michigan and Colorado, and tackle some of your other questions.

I appreciate your comments, your questions and the sample resource manuals and suggestions you have sent. Your input often gets me thinking! I've mailed a bunch of replies this month, and I appreciate your patience—I think some days last month had less than 24 hours and I got behind.

Goodbye Bev

I was saddened at the passing of Bev, N7CPV, in December. Many years ago Bev dropped into a QSO on 40M and we had a nice chat. She was often heard on the low bands and then on 2M after she moved to Salt Lake.

It was only after her death that I learned she suffered from serious health problems. Reflecting on her many hours on the air over the past years, I cannot recall Bev ever feeling sorry for herself, complaining or being negative on the air. She would always sign as that "cheerful perky voice."

Bev wasn't on the front lines of emergency response and she may not have been club president—but every QSO with N7CPV was a positive experience. She always had something good to say and was there to help in any way she could. There's a lesson there for many of us. Thanks Bev. I'll miss hearing your call.

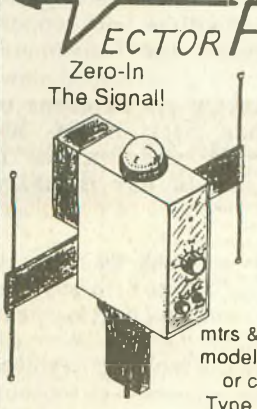
73 from Salt Lake City.

WR

"Kids will talk to *anyone*. Just be yourself!" — *Sammy Garrett, AA0CR, 1991 Westlink Young Ham of the Year*

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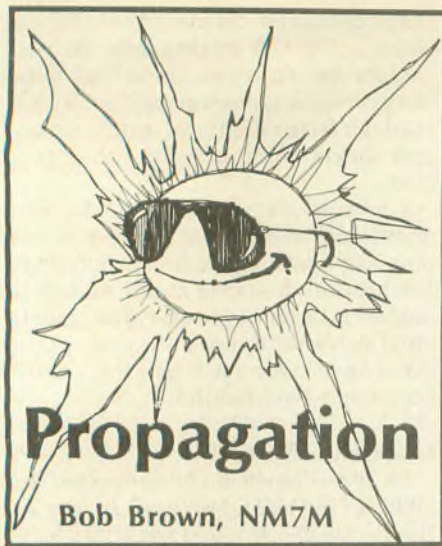
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You all know about the sun and the ionosphere but have you ever thought about the influence of the moon? It sits up there, a massive object that orbits the earth, best known for the tides it produces. But how could that inert, romantic object ever affect our ionosphere?

Recently I was forced to think about that when I had a long path QSO with my friend Jim, ZS2LR. In an off-hand way, he told me he'd had a long path QSO that seemed to be disrupted by a solar eclipse in his area.

As Jim told it, he had a QSO with K5JG, starting at 1224 UTC on 30 June, and JG's signals at Uitenhage were RST 579 at the beginning. But Jim said his signals were "just about wiped out" by the eclipse, the QSO forced to an end at 1259 UTC. And Jim added that the eclipse reached 80 percent of totality at his QTH. Curious!

Now if you look into it, you'll find that the moon is not exactly considered as an active agent in propagation matters. But it has been used, time and again, in eclipse settings to provide radio scientists with opportunities to explore the ionosphere. However, the method developed slowly, in step with the development of technology. Thus, back in the '30s observations were made to see if eclipses gave rise to any intensity changes or disturbances of broadcast transmissions.

That sort of approach was pretty vague and poorly defined, to say the least. However, with the development of the ionosonde, they were able to use total eclipses by the moon to examine atomic and ionic processes at various levels in the ionosphere.

Just to refresh your memory, the ionosonde sends a series of pulses of RF vertically upward and then listens for the echoes from the various

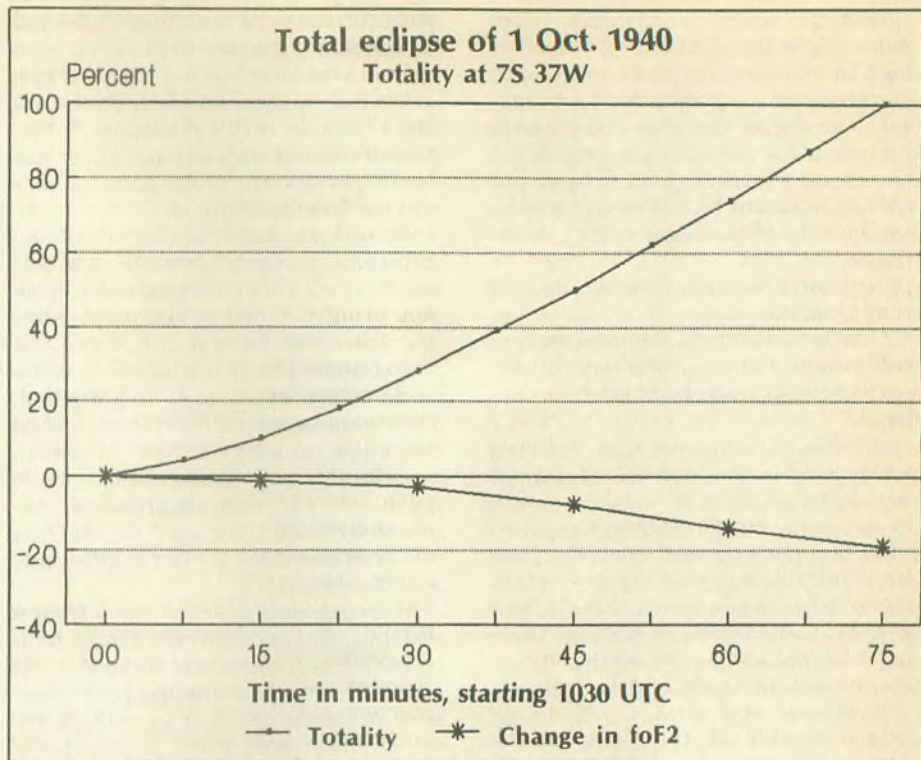


Figure 1

ionospheric regions. The frequency of the RF is slowly increased, say from 500 kHz to about 20 MHz, and the time delay between the pulses and echoes provide measures of the height and electron density of the ionosphere on a given occasion at that locality.

With ionosondes and eclipses coming together, it proved possible to explore the processes by which the ionosphere decays—the recombination of electrons with positive ions as the source of ionization is "turned off." While theoretical estimates of the recombination coefficient have been available in the course of time, laboratory work advanced slowly. Thus, the natural settings during total eclipses offered unique ways to study the matter, enough to make radio scientists haul their ionosondes to distant places along the paths of total eclipses.

A case in point was the total eclipse of 1 October 1940. In that instance, members of the Central Radio Propagation Laboratory of the US National Bureau of Standards went to Patos, Brazil (7S, 37W), to make observations during a total eclipse. The whole event lasted about 160 minutes, from first to last contact of

the moon with the solar disk. During that time, the CRPL team banged away with RF pulses aimed at the ionosphere overhead, noting how the critical frequencies of the E, F1 and F2 layers changed with time.

The observations were made during morning hours, from about 8 a.m. until almost 11 a.m.; during that time the critical frequencies of the regions normally increase as the sun rises. While the actual observations were made in terms of frequencies, the data were reported in electron densities, the quantities of interest in discussing electron-ion recombination rates.

On that occasion, all three ionospheric regions showed decreases in their critical frequencies as the eclipse advanced toward totality. While totality was brief, a few minutes around 1145 UTC, the data showed that the electron density in the E, F1 and F2 regions fell by 76, 73 and 37 percent, respectively, from their quiet day values. For those who think more in terms of frequencies, that meant that the critical frequency of the F-region dropped about 20 percent by the time the eclipse reached totality.

But that was not the end of it, as the recombination rate of the lower layers was much faster, by over a factor of 100, than in the F2 region. Thus, the electron densities in the E and F1 regions fell off rapidly as totality approached. However, there was a lag in the F2 region electron density, not reaching a minimum in time-coincidence with totality nor recovering

FRIEND OF BILL W. ??
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fully by the time the eclipse ended.

With the use of the Interactive Computer Ephemeris (ICE), one can go back in time to 1940 and examine the variations of F-layer critical frequency with the degree of totality during the growth phase of the eclipse; this is shown in Figure 1. The F-layer frequency fell from 12.4 MHz to 9.8 MHz by the time of total eclipse but the initial value was within the range expected for a sunspot number of 64 at that location.

Now let's use that information as a calibration run to examine how the eclipse of 30 June 1992 might have affected the contact between ZS2LR and K5JG. First, we note the path went off at a heading of 110 degrees east of north from Uitenhage, and its length was about 26,000 km. With that, we can find the location of the first refraction point on the great-circle path to Tupelo, MS. In geographic coordinates, that turns out to be at 37.6S, 43.8E, corresponding to a magnetic latitude of 41.3S.

Next, we need to know when the eclipse started at that location and how far it proceeded before the contact seemed to be disrupted. For those questions, use was made of the book *Astronomical Phenomena for the Year 1992*, jointly published by the US Naval Observatory and the Royal Greenwich Observatory.

The book indicated that the eclipse was total, not annular, and began at 0951 UTC and ended at 1430 UTC. In addition, it showed a map with the path of totality in the Southern Hemisphere. However, the degree of totality was not indicated; for that information, reference was made to the information in the *Observer's Handbook* published by the Royal Astronomical Society of Canada. There, it showed the trace or path of 80 percent totality across the tip of South Africa, as suggested by ZS2LR.

Since the question is whether the eclipse was responsible for the disruption of the QSO between ZS2LR and K5JG, the ICE program was used to calculate the growth of the eclipse toward totality at the first refraction point on the great circle. This was done in five-minute intervals and indicated that the degree of totality at the refraction region reached about 34 percent at 1300 UTC when the QSO came to an end.

Going to the curves in Figure 1, we see that a decrease of about 4 percent in the critical frequency would be expected at 34 percent of totality. The question then is whether that would be sufficient to disrupt propagation on the path. For an answer, we need information on the critical frequency for oblique propagation at the refraction region and we must turn to HF propa-

gation programs, using the relevant data for the time and location as well as the sunspot number (80).

This was done with two programs, IONCAP and FTZMUF2, which use the CCIR database. Taking the most conservative result (from FTZMUF2), both programs indicated that the critical frequency for oblique propagation was 17 MHz or greater with a probability of 90 percent. Further, even a reduction of 4 percent would not bring it down to the point where the path would fail on 14 MHz. That being the case, the disruption of the QSO must have resulted from other additional effects or elsewhere along the path.

A more detailed examination of the path shows that it reached 47S magnetic latitude before turning north again toward K5JG. More than likely, the disruption of the QSO was due to additional effects of magnetic activity as the geomagnetic field was recovering from an episode when the K-index at a comparable latitude reached a value of six. This is supported by log data from W6TUR, who frequently contacts ZS2LR. Thus, on that date his log showed only contacts with low latitude stations, KH9 and 3D2, and no signals heard from the long path direction.

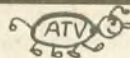
While this examination of the cir-

cumstances surrounding the eclipse do not support disruption of the long path contact from that one source, it should be noted that the region was away from the central path for totality and never reached its maximum, 80 percent. As shown from the data for the eclipse in Brazil, the critical frequency of the F2 region can fall as much as 20 percent during a total eclipse. Since the region of totality is rather large, in the order of 300 km across, the potential for disruption of propagation is there, as a 20 percent change in critical frequency is comparable to what is found during magnetic disruptions.

So the moon cannot be dismissed out of hand as a possible source of ionospheric disruption on paths, long or short, but since eclipses occur at a low rate, only a few a year, the threat is not a major one. Instead, solar eclipses serve the study of the ionosphere well by being predictable years in advance and offering a setting where ionospheric processes may be examined with the natural abundance of atmospheric species. With advances in technology, the ionosonde studies have been supplemented by rocket probes. These have the advantage of sampling conditions continuously in altitude, not just at the ledges in the electron density profile. WR

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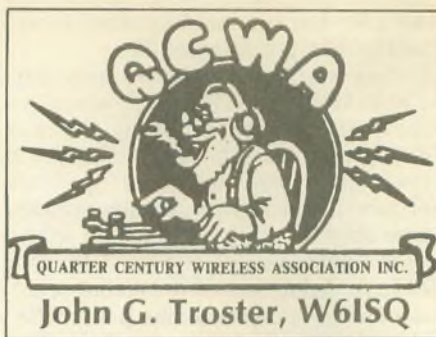
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If you were in high school at that time, I'll bet you thought, "Gee, QCWA, all them spark-gap fellas." What do you know, here you are now eligible for membership yourself in the honor society. You're now one of the "spark-gap" crowd in the eyes of present high school ops. And they can say, "Gee, those fellas used tubes!"

Yep, baby boomers, you've come a long way and now you're big boomers and fully qualified to join the radio honor society, the QCWA. And remember, membership in QCWA does make a statement about your experience, wisdom, intellect, willingness to help others and your good sense. And we, the many, the proud, the QCWA, invite you to sign up today.

If you have been licensed 25 years and would like to join our honor society, and who doesn't, and be one of us, the many, the proud, the QCWA, write QCWA headquarters, 159 E. 16th Ave., Eugene, OR 97401. Ten bucks a year! How can you go wrong?

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Please note: I was a baby boomer myself once, too, but from a different war, World War I. I never operated a spark-gap transmitter, although I think it would be fun. I did, however, see a demonstration once and it was most interesting. Ear plugs needed.

Project

At the September National QCWA meeting in Phoenix, I had the pleasure of meeting Leo Witkowski, K1QPJ, who told me about a very interesting project he is pursuing.

It involves recording the ionization of the D-layer. When a solar flare reaches the earth, it may disrupt the HF spectrum, as amateurs know and have experienced. But some of the flare's emissions, mainly x-rays and ultraviolet radiation, enter the earth's atmosphere and actually enhance propagation of the VLF frequencies between 5 and 100 kHz. These are the groundwave transmission frequencies which propagate between earth and the D-layer, the lowest portion of the ionosphere, about 70 km above the earth. The D-layer is active only in the sunlit portion of the earth. When the shortwave emissions from the flares reach earth, a temporary but significant increase in D-layer ionization level occurs. This phenomenon is known as a sudden ionospheric disturbance (SID).

The ionization of the D-layer can be recorded by observing the transmission from a VLF transmitter used by the US Navy to talk to submerged submarines on frequencies in the range of 21 to 31 kHz. There are eight naval stations operating in that region which can be monitored by a suitable receiver and recorder. Seven of these stations are in the Western Hemisphere and the other is in Australia. When the sun comes up in the morning, the D-layer ionization begins. When the sun goes down, ionization dissipates. When an SID event occurs, signals in this region are intensified, indicating a D-layer intensification by those solar flares. By recording one of the VLF naval stations, an observer can note the ups and downs of the D-layer. An SID would be superimposed on this normal D-layer ionization.

This descriptive material was edited from an article by Peter O. Taylor and Arthur J. Stokes, W8BN, AAVSO Solar Division (P.O. Box 5685, Athens, GA 30604-5685) published in *Communications Quarterly*, summer 1991, "Recording of Solar Flares Directly." Our thanks to K1QPJ.

Leo, K1QPJ, built the VLF receiving and recording system as described. The equipment consists of a simple transistorized VLF receiver, converter, computer (software), printer and loop antenna. Very straightforward.

ward and an interesting project for members individually or as part of a chapter team, where each contributing member would contribute that part of the project in which he or she had experience. The information recorded may be sent to the authors of the paper mentioned above for their ongoing research. It could be educational and much fun for you to learn a bit more about solar flares, sunspots, or lack thereof, and propagation in general.

An interesting aside is that those VLF stations are also used in prospecting for iron sulfide ore deposits. Such deposits distort VLF radio waves. A small VLF receiver is mounted on one end of a lightweight, 2 ft. tube and a small, tightly wound loop antenna on the other. This is carried by a geologist or engineer who tunes in one of the naval stations. Signal intensity is recorded as the device is moved from one location to another, usually on a grid pattern. A large sulfide deposit will distort the VLF waves from normal "background" readings. These divergences are recorded and thus by multiple traverses, the ore body may be outlined. So the Navy has provided us the use of their VLF transmissions which probably have never been heard by most radio amateurs.

This has been a slight excursion from routine amateur thinking about radio waves. But most of us are naturally curious about propagation and are particularly receptive to diverse information. At least that's the way it is with those in the honor society, always looking for something new to learn.

Like Leo, there are many QCWA members who get involved in new, interesting projects. From what I read in the *QCWA Journal*, many chapters are involved in projects ranging from public service to scientific. There are reports of QCWA groups involved in Elmering of some sort, such as license study programs, or communications for some emergency or celebration. How about sharing some of your projects with our general readership? Your ideas may encourage and spark —ooooppps, those spark-gap thoughts are still with me—other groups within the association to do likewise. It makes for expanded enjoyment for all.

Thinking again about propagation, hope you monitor the worldwide NCDXF/IARU Beacon Network transmitting on 14.1 MHz. All beacons repeat their message every 10 minutes and the network runs 24 hours a day. Beacons are located in United Nations, New York; Stanford, California;

Hawaii; Japan; Israel; Finland; Madeira; South Africa; and Argentina. Flip in your CW filter to separate the beacons from the packets. The beacons are there and have been for more than 10 years. There are plans to expand the network to other countries and we will talk more about the network and its expansion in the future.

We hope you will be inspired enough to do something new. Perhaps you dedicated CW types could try a little phone for a change and vice versa. Maybe get into RTTY or chase a little DX, which will take a little more skill now, during the approaching sunspot minimum. But, DXpeditions are still


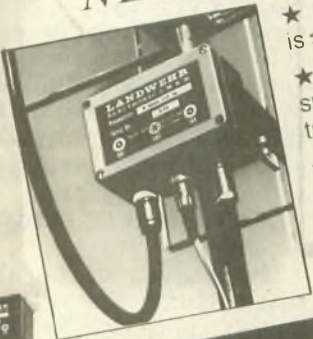
going out to rare places, and amateurs still live in those far-away spots, so all is not lost. The DX is out there. You can sharpen your skills by trying to work some of it.

Before we leave spark-gaps, we'd love to hear from those of you who actually owned and operated spark-gap. Describe your experiences for us. We'd like to pass them along to our readers. If they are not too complicated, maybe I could even build one. Do you think we could make some kind of filter that would narrow things . . . well, maybe I'll just go visit one in a museum. But let's hear from the experts! Thanks, until next month, 73! WR

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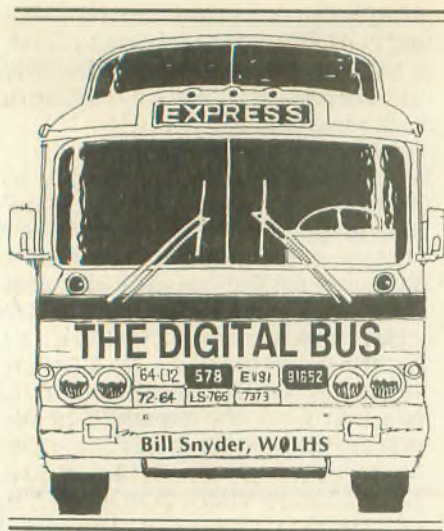
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A few years ago I wrote about my experiences as a member of the land-based radio communications team supporting a Viking ship expedition across the stormy Atlantic Ocean in 1982. Last year I attended the 10-year reunion of the expedition members, and it was certainly interesting. We relived many of the tense moments we experienced while communicating via Amateur Radio with the replica Viking vessel as it made its exciting trip from Duluth-Superior, Minnesota, to Oslo, Norway. The reunion was fun!

The voyage began because Charles Asp, a school teacher in Minnesota, dreamed of actually constructing a Viking ship replica and then sailing it to Norway through the St. Lawrence Seaway. It was a very ambitious dream which Charles Asp never finished, for he died shortly after he had completed building the boat, named *Hjemkomst*, (Norwegian for "homecoming"). However, Asp's kids jumped in the breach and finished Charles Asp's dream by becoming part of the crew that made the three-month voyage.

One of the *Hjemkomst* crew members was 20-year-old Jeffrey Solum, a young sailing enthusiast and electrical engineering student at North Dakota State University. Jeff was chosen because he was a sailor as well as a radio operator.

Amateur Radio was to be the main link with the voyage, so a crash program was arranged to help Jeff get his Amateur Radio license by the time the vessel was to leave Duluth and head for Norway. Jeff passed his ticket exam with flying colors, and so, with donated ham gear aboard, the little motorless boat headed out of Duluth for the trip downstream to New York City.

The Fargo ham radio team contacted the *Hjemkomst* vessel each day on schedule. After our weather and housekeeping messages were traded, Jeff would make HF contacts with hams around

the world. He also made hundreds of QSOs on 2M while the boat was in the Seaway.

The *Hjemkomst* voyage caused great excitement on the phone bands, especially when the little wooden vessel was being battered during one vicious storm at sea. Charlie Asp's oak plank sprung a leak, with the seas running as high as 25 feet or so. But strenuous bailing and quick repairs brought everyone into the Oslo harbor safely.

After the voyage I became the QSL manager. Each day my mailman handed me a rubber-banded package of envelopes which I stacked up until Jeff returned to the United States with the logs of KAØNEX. By that time the QSL pile was quite high, as you can well imagine.

Then my work began. The 2M cards were the toughest to handle, and I'll give you a guess as to why. Need an answer? Well, it was the "time" of contact. I received cards with standard time, daylight time, universal coordinated time, and some with no time at all. I got cards with the date in error by one day forward or one day late. I finally had to make a chart with all the error possibilities so I could find the contact in the log. When there were many pages of QSOs on the same date, it gets to be a job to find the right call sign. But we made it, although the job took about three years before cards quit coming in.

Today the *Hjemkomst* vessel is proudly displayed in a beautiful museum in Moorhead, Minnesota. If you pass through Fargo or Moorhead, I would suggest a visit to the museum. There you can see an exciting video of the voyage and learn first-hand of the great expedition.

My reason for bringing this all up is that I recently sent a QSL card to a manager in Nevada for an RTTY contact that I had made last April with Pakistan. I got my card back with a post-it note reading: "Bill, John was not in Pakistan on 4 October." The contact had taken place on 10 April and I met

both John and his QSL manager at the DX banquet at Dayton last year.

As you can probably guess, I put the date on the card as 10/4/92 and the American manager thought the month was October, not April. I should have put it as 10/04/92, then he might have had a clue as to the date. My mistake!

I usually use the European system of dates when I send cards overseas: DD/MM/YY, and of course I did that with the Pakistan card even though the contact had been with an American in the Embassy. I immediately dispatched another QSL and now I'm awaiting the treasured Pakistan card, because they don't have much RTTY action from there.

Packet line stuff

One of the perks from writing this column is the communications I get from readers around the world. Every morning I check my BBS and usually find messages from hither and yon that are fun to read. I print them all out and when it comes time to write the column I go through the pile on the floor behind the printer and refresh my memory.

I've said before that I would like to see more person-to-person communications on packet and a lot less junk mail. Our local club bulletin board has a ragchew frequency on 145.09 for the local guys to use, thus keeping the 145.01 channel open for BBS forwarding. It seems to work out very well. Frankly, I don't like ragchewing on packet; RTTY is more suited to the job.

In looking through the recent printed pile (3/4 inch high) I found a message from an Omaha club meeting. They were demonstrating how a packet BBS works. I answered the message and got acquainted with Rich, WA0ZQG @ WBØBLR.#SWIA.IA.USA.NA. Rich and I have been back and forth a number of times: good person-to-person stuff!

Over a year ago I wrote about counting hunting on packet by quoting Roy KEØUQ@WBØAEX.#EKS.KS.USA.NA a leader in that part of the hobby. Here's a bit of one of Roy's recent messages to me: "I've had good response from foreign hams who receive *Worldradio* mailed by friends in the US. Over one year after the column appeared, I began getting messages from Europe and Asia. The lesson in this (for me) is not so much the fun of international packet, but the need for all of us to send our ham magazine abroad when we are finished reading them."

I agree with Roy. Up until I started using the CD-ROM callbook, I mailed my old callbooks to UT5RP in Odessa. They were really appreciated, and the postage rate by surface mail is cheap.

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Jim, K9ZZ, the editor of the Wisconsin Smoke Signal Amateur Radio newspaper. Jim lives in Baraboo, Wisconsin, where the wonderful Circus World Museum is located. In my recent pile of messages were a few from Jim telling me the story of his trip to Milwaukee for the annual Circus Parade. Jim rode the circus train from Baraboo to Milwaukee as part of the ham radio support for the parade. Now that kind of traffic makes me jealous, because I am a genuine circus fan!

And then there were a number of these kind of messages: "BILL, I RECEIVED YOUR REPLY TO MY PACKET MESSAGE IN LESS THAN 24 HOURS. NOT BAD FROM ND TO FLA. YOU ARE MY FIRST OUT OF STATE PACKET CONTACT AND I AM AMAZED HOW WELL THE SYSTEM SEEMS TO WORK. THANKS FOR THE REPLY. 73 JOHN, N4YMH @ N4GXX.##CEWFL.FL.USA.NA."

My offer still holds for those who want to try person-to-person packeting: send me a packet message and I'll reply with your message's routing header in mine.

Radio fan stuff

If you are an RTTY fan and you don't subscribe to the *RTTY Journal*, I suggest you do. Jules Freundlich, W2JGR, is the new DX editor of the *Journal*. He took over after TG9VT passed away. Jules will do a great job! The *RTTY*

Journal can be ordered from 9085 La Casita Avenue, Fountain Valley, CA 92708-2712.

If you are an old-time broadcast radio fan, you may send an SASE for information to the Radio Historical Association of Colorado, Glenn Ritter, P.O. Box 1908, Englewood, CO. The non-profit group has thousands of tapes and cassettes of old radio shows that can be used by members for a nominal fee. If you liked Fibber McGee and Molly, *Great Gildersleeve*, Jack Benny, *Suspense*, Roy Rogers, Judy Canova, *Life of Riley*, etc., the RHAC has 'em!

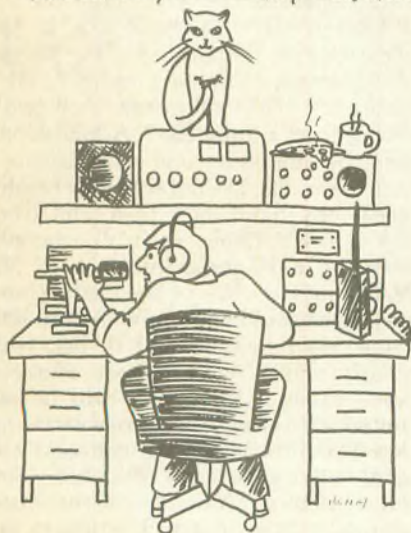
EAVESDROPPINGS

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Thanks to KI5XP, N4YMH, N8PTT, KA3WZZ, K5KKO, W0HAH, W5SYT, W9ILY, N1JRP, G0NJJ, N0DST, N9NRF and NE2U. My packet address: W0LHS @ W0LHS.ND.USA.NA. Mail: 1514 South 12th St., Fargo, ND 58103. 73 de Bill Snyder, DIT DIT. WR

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Activities

BYLARA Contest—11 and 13 Feb.
YL-OM Contest—13-14 Feb. (SSB)
Guides on the Air—21 Feb.
YL-OM Contest—27-28 Feb. (CW)
DX YL-NA YL Contest—14-15 April (CW)
DX YL-NA YL Contest—28-29 April (SSB)

The sixth of each month is YL Activity Day. Call "CQ YL" on the hour on any frequency ending in 88. Also, check the frequencies ending in 33 for CW.

Contests

Conditions were not too good for YLRL's Howdy Days, held last September, but it was fun. Rosel Dach, DL2FCA, was the top-scoring YLRL member.

Conditions were much better for the YLAP, held in October. Lia Zwack, WA2NFY, was the North American YLRL member with the highest com-

bined SSB and CW score and was the winner of the Corcoran Award. Rosel Dach, DL2FCA, was the DX YLRL member with the highest combined score and was the winner of the Hager Award. Gold Cup winners for SSB were Millie Wadler, AB4KL, and Nomi Dor, 4X6DW. Gold Cup winners for CW were Lia Zwack, WA2NFY, and Rosel Dach, DL2FCA. Congratulations to all the winners!

The British Young Ladies Amateur Radio Association is sponsoring its 10th annual contest in February. This year, the contest will run from 1900-2200 UTC on 11 February and from 1000-1300 UTC on 13 February. YLs contact both YLs and OMs, and OMs contact YLs only. Logs go to Diana Hughes, G4EZI, and must arrive by 5 April. You can drop me a note if you'd like a copy of the contest rules.

And just in time to celebrate Valentine's Day is the YL-OM, one of YLRL's biggest contests. This is the only one where YLs work only OMs. The phone and CW portions are scored as separate contests, so be sure to submit separate logs. These go to Carla Watson, WO6X, and they must be postmarked not later than 30 days after the end of each contest. Most of the major Amateur Radio magazines will publish the complete rules, or you can write to Carla for a copy. Mark your calendar now for these events.

And remember the Guides on the Air (GOTA), an international event, jointly sponsored by CLARA and the Canadian Girl Guides, which is planned for 20-21 February 1993. This is also a good chance to interest Girl Scouts in your area in Amateur Radio. The English Girl Guides will also be on the same weekend. For further information, write to Cathy Hrischenko, VE3GJH, 2 Dalmeny Rd., Thornhill, Ontario L3T 1L9.

Meetings and conventions

There's a lot of conversation on the air these days about the Asian YL Meeting '93 to be held in Osaka, Japan, on 3-5 April 1993, during the cherry blossom season. This isn't sponsored by or for any club. The Japanese YLs are just inviting all YLs, their families, and their friends to visit Japan during the cherry blossom season to make friends from around the world and to contribute to international friendship. Kyoko Miyoshi, JR3MVF, is the main organizer of Asian YL Meeting '93, and there are many YLs working on the plans. Nozomi Gohara, JH3SQN, has organized some optional tours in Nara and Kyoto following the meeting. I can provide you with more details if you're interested in attending, or you can contact Kyoko or Nozomi directly.

Plans for the YLRL 1993 Convention in Wichita on 8-11 July, 1993, are also progressing. President Dana Tramba, N0FYQ, has planned a get-acquainted party on Thursday, 8 July. There will be tours on Friday and a DX festival that night. On Saturday morning, the YLRL Forum will begin, and the banquet will follow on Saturday night. A farewell brunch on Sunday will close the festivities. Marte Wessel, K0EPE, is working on the YLRL Scholarship Fund and has donation tickets available for a drawing for a three-day Las Vegas vacation, to be awarded at the convention. You don't have to be present to win, so if you'd like to help YLRL with this worthy project, contact Marte for donation tickets of \$1 each.

YL certificates

The New Zealand Women Amateur Radio Operators (WARO) offer the NZ WARO Award. The rules are: 1) Applications must contain full log details of contacts with at least 50 NZ WARO members (DX members included), dating from 1 June 1987. Applications must be signed by one other licensed radio amateur. 2) Contacts may be any mode, any band, or mixed, and from any DX QTH, but each YL claimed must be a financial member of NZ WARO at the time of the contact and may be counted once only. 3) Contacts made via repeaters and in nets will qualify and WARO contest contacts made after 1 June 1990 will be accepted. 4) Stations will be deemed to be in a DX situation when contacts are made from a distance of at least 500 miles offshore from the three main islands of New Zealand. Stickers are available for each further 10 contacts, up to 100. If, or when, this figure is reached, the applicant will automati-



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cally be issued the NZ WARO Century Award. 5) No QSLs are required. Send log extracts and four IRCs to the custodian: Vicki Shaw, ZL1OC, P.O. Box 2088, Whakatane 3080, New Zealand.

YLRL Italiano offers the EUROYL Award, open to all YLs, OMs, and SWLs throughout the world. Modes are phone, CW, RTTY, and mixed; bands are 1.8, 3.5, 7, 14, 21, and 28 MHz. The Italian Young Ladies Radio Club issues this award for confirmed contacts since 1 January 1990, with YLs from at least 20 different European countries among those on the current ARRL list for DXCC. The base award is for contacts with at least 20 YLs, one for each European country. Stickers are available for each additional 20 countries worked with YL operators.

QSLs must be in your possession, but are not required to be mailed. (Please send them only at the request of the award manager.) Logsheet with usual data, listed in the same order as the above-mentioned list, must be sent to the award manager: Adriana Parducci, IK5MEQ, Via Di Tiglio #183, 55066 S. Margherita (LU), Italy. Fees are 20 IRCs or \$13 for the award and 11 IRCs or \$6 for each endorsement. Fees may also be paid on the postal current account #12448551 of the award manager.

DX YLs

Barbara O'Connor, VK2GTX, has moved from Australia to Brunei and is on the air, now V85BJ. Her brother, K.G. Forbes-Smith, VK2KFS, is her QSL manager.

Dianne Watkins, ZL2USO, talked to

Ellen Baker, KB5SIX, on the last Fourth of July, for a very special QSO. Dianna writes, "Not only was it the day I made my first DX contact, but contact with an American astronaut and a YL at that!" (Ellen was the mission specialist on the space shuttle *Columbia*.)

Christine Dons, GM4YMM, was one of the many YLs waiting for a QSL from Merilla, formerly ZA1TAL, now ZA1L. She talked to Martti Laine, OH2BH, last summer to see if there was some way she could help with the QSLs and learned that Merilla was in a difficult situation. Albert Mueller, HB9BGN, and Swiss Air have assisted with the QSL problem, but Merilla is a young girl living with her parents and grandparents in two rooms with no radio equipment. Martti has challenged Christine to raise money to buy enough equipment to get her on the air and also to share with some of the other radio amateurs in her area. Christine has sent letters to YLs around the world and is acting as the collecting point. She will be advised by OH2BH and HB9BGN on the most suitable equipment and accessories, as well as how to get the equipment to Merilla. Carla Watson, WO6X, is helping with the project in this country, and she will accept donations and forward them to Christine.

At presstime, twins Janet, K0JE, and Janice, K0JA, Robidoux, were scheduled to begin operations from Tonga on SSB and CW. Janet's call is A35JE, and Janice is A35JA. If you were lucky enough to work one or both of them, you can QSL to their home calls in Minnesota. WR

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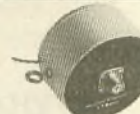
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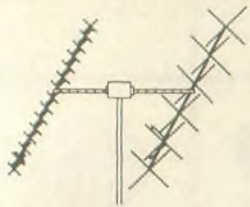


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Amateur Satellites



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When I first approached *Worldradio* about doing a satellite communications column, I was not prepared for an affirmative reply. As a matter of fact, I envisioned an uphill battle to break away from my traditional role as the QRP column editor and move into the amateur satellite arena. Such was not the case. The Amateur Satellites column has been missed for a while now and *Worldradio* was very enthusiastic about my desire to write this column on a regular basis.

As to the disposition of the QRP column, I had been looking for a replacement editor for my column since June last year. Many of the big name, long-time QRPers I contacted did not want to undertake the column, citing lack of time and the hassle of meeting production deadlines. However, after a few phone calls I have found someone to continue the column. Let me assure the readers who enjoy this column that I have picked a very knowledgeable and active QRPer to take over the reins.

Since this is my first Amateur Satellites column in *Worldradio*, let me take a moment to express how thrilled I am about taking the position

as editor of this column. Many of you have missed Keith Berglund, WB5ZDP, the previous editor. Due to career and family priorities, Keith had to shift some irons in the fire, and there has been no monthly Amateur Satellites column in *Worldradio* for over a year. Keith's shoes are gigantic. I am not even going to try to fill them. Rather, I intend on presenting amateur satellite communications in a different light.

First, let's get one thing straight from the getgo. I am not an amateur satellite expert. I have had a long love affair with space communications in general and amateur satellites in particular. However, it has been only in the last year and a half that I have *really* become active on the various "birds" accessible to the amateur satellite community. Therefore, I cannot hope to approach the duties of Amateur Satellites column editor from the same perspective that Keith did. Instead, I will be taking a different tack altogether.

My approach will deal with the newcomer to satellite communications. Things that seasoned satellite operators (SATOPS) take for granted are nothing short of miraculous to new satellite communicators. My main efforts will be to dispel many of the myths and erroneous information that have circulated regarding amateur satellite communication. This same misinformation causes many potential SATOPS to become disinterested in this portion of the radio hobby, categorizing SATCOM as a difficult, expensive and highly technical endeavor.

One thing that is needed in the amateur satellite community is an upsurge of satellite operators. We need to bring new SATOPS into our ranks to insure that amateur satellite communications has a future. This can be

done by making it relatively easy for the uninitiated satellite user to first hear and then communicate over one or more of the many low earth orbit (LEO) satellites currently available. Once the SATCOM bug has bitten, it will only be a matter of time before the new satellite communicator invests time and money into upgrading his LEO station and becomes active on OSCAR-10 and 13.

Speaking of the thirteenth Orbiting Satellite Carrying Amateur Radio (OSCAR-13), current analysis of orbital decay data predicts that this high-altitude bird will reenter the earth's atmosphere sometime in late 1995 or early 1996. This means that this satellite (which currently supplies SATOPS worldwide access for up to several hours at a time) will burn up as it reenters the outer layers of atmosphere, leaving only the aging and ailing OSCAR-10 as the primary extended access satellite. Current plans call for the launch, via an Ariane 5 rocket, of a Phase 3D replacement for OSCAR-13 in late 1995. If all goes well, and funding becomes available, this new bird will be the most ambitious project undertaken to date by the amateur satellite community.

In order to fund this project, the Radio Amateur Satellite Corporation - North America (AMSAT-NA, our parent organization) needs to collect about 1.5 million dollars for their share of the project costs. This is no small task. You can help insure the future of amateur satellite communications by joining AMSAT-NA right now. The current subscription/membership price is a paltry \$30 per year. Of this amount, a small portion goes to production and mailing of *The Journal*, the quarterly newsletter of AMSAT-NA. The rest goes to funding future amateur satellite projects, like Phase 3D, the replacement for OSCAR-13.

AMSAT-NA represents our interest to the non-amateur space science community. All their officers and directors are volunteers. Everything is undertaken on a shoestring budget in order to keep operating costs down and provide the maximum funding support for future projects. AMSAT-NA needs your support. In addition to the yearly

Correction

A correction is to be noted in the November '92 issue. Steve Locks, who spoke at the DX Forum of the ARRL National Convention in Los Angeles, has the call sign W6FRZ (it appeared incorrectly under the photo on page 6 as N6FRZ).



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membership dues AMSAT-NA has a special fund to which anyone can contribute to the Phase 3D project. To join or obtain further details about AMSAT-NA write them at: AMSAT-NA, 850 Sligo Ave., Silver Spring, MD 20910.

As a bit of personal insight into the satellite communications arena, I firmly believe that amateur satellites are the future of the Amateur Radio hobby. As the HF bands become more crowded and Third World countries petition the ITU for their share of these valuable frequencies for their short-wave broadcast outlets, there is no place left to go but up (pun intended). Up in frequency and up in altitude.

The challenge of assembling a working satellite communications ground station ranges from simple to highly complex, depending upon the individual interests of the SATOP. The level of participation for the radio amateur is entirely up to the individual. It can be as basic or sophisticated as the operator desires. Each step that the SATOP takes from first entering the satellite communications arena will build upon the previous accomplishments. To say that "the sky is the limit" is a horrible pun, but it is the basic truth.

In the intervening months this column will start out on the basic premise that the majority of the readers will be relatively new to amateur satellite communications. Together we will take the first hesitant steps into the world of satellite communications and develop a strategy that will enable us to grow and enjoy this facet of the radio hobby. Slowly we will obtain an understanding of the basics needed to

work some of the LEO birds on CW and then progress onward to the more complex modes on the various other satellites.

This column will serve to help the SATCOM neophyte obtain the necessary information and hardware to successfully embark on a career in amateur satellite communications. It is my hope that those more experienced SATOPS who read this column will contact me and offer tips, support and ideas for this column. I will draw heavily upon my experiences in satellite communications to guide the reader through the maze of information (and misinformation) that exists surrounding amateur satellite communications. I am certain that after I share some of my more embarrassing moments in SATCOM, it will become apparent that I am learning right along with the average reader. Whether they admit it or not, experienced satellite communicators are learning each time they turn on their equipment and access a bird. Amateur SATCOM is a learning experience. That's what makes it so much fun and such a challenge.

On a personal note: I will be donating 100 percent of the writer's fees that I am paid for writing this column to AMSAT-NA to support the fundraising efforts for Phase 3D. I believe that the future of Amateur Radio is in the area of satellite communications and I'm willing "to put my money where my mouth is," so to speak.

That's a wrap for this first column. Next month we'll dive right in and develop a strategy for a painless way to get started in satellite communications. Remember, the sky is the limit! 73, Rich Arland, K7YHA. WR

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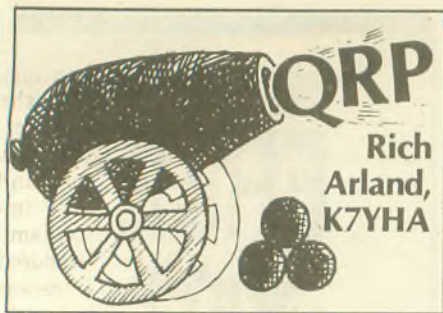


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I hope all of you had a great holiday season and Santa managed to leave something useful. I'm still waiting for my FT-1000. Santa's helper said that Santa was so impressed by the performance of the radio, he had to take it back to the North Pole for the rest of the contest season. Hmm... sounds a little fishy to me.

Speaking of the contest season, I recently went over my logs for the last couple of years and was surprised to learn that the majority of my HF operating (about 90 percent) was done only during contests. This was a bit of a shocker. The remaining HF time was spent DXing. V/UHF operating was almost exclusively on satellites with some ARES net and disaster drills thrown in for good measure.

Contesting is a great way for anyone in general, but QRPers in particular, to improve their operating skills and DX-CC totals. We have all heard the whiners and complainers grumbling about that "*#@&\$+*# contest!" In truth, contesting is a very good method for most of us to improve operating skills, increase stamina, and learn how to copy voice and CW under extreme band congestion. The SEC for Eastern Pennsylvania, Walt Jones,

KB3QW, recently stated that if he could find a few good testers he could run a real smooth emergency operation. His rationale was simple. Contesters were used to long hours, little sleep, dogged in their operating abilities, and could perform well under pressure. Just the thing needed for an actual communications emergency (or drill).

Let's take this one step further. I like Walt's idea. It has merit and is based on fact. Many times, local ARES and RACES groups are formed and concentrate on traffic handling via the National Traffic System (NTS). Not that this is a bad thing to do. Quite frankly, everyone needs to be able to handle traffic. The problems arise when the local ARES and RACES hierarchy get firmly entrenched in the belief that merely handling traffic on the NTS will make the Amateur Radio operator a good emergency communicator. This is not only a false assumption, but potentially hazardous.

Absolutely *nothing* prepares a radio amateur for an emergency communications situation short of an actual emergency. Like it or not, you can participate in all the SETs and Field Days you want to, pass tons of traffic on the NTS and get your name in the BPL each month, but physically, psychologically and emotionally, you are ill-prepared for an actual emergency. Those of us who have been fortunate enough (or unfortunate, as the case may be) to be directly involved in an actual emergency are the only ones who can really grasp the magnitude of the situation.

Personally, I have weathered three typhoons and several small earthquakes (while stationed in Japan), three hurricanes (one in the Azores and the other two while stationed at Langley AFB, Virginia), a rash of tornadoes (while stationed at Tinker AFB, Oklahoma), and happened upon the scene of several severe traffic accidents. In short, "I's been to the big city and I's seen the elephant!" In some cases, Amateur Radio involvement was not solicited or was directly prohibited by status of forces agreements between the US forces and the host government. Other times, mostly in the States, I was fortunate

enough to participate in the event as an emergency communicator.

Each time I was a part of the emergency communications team supporting local or state agencies, I learned valuable lessons about my communications abilities, equipment and emotional stamina. Each event prepared me for the next. I have grown as an emergency communicator. No, I am *not* the greatest emergency communicator in the universe. Nor will I ever be. However, my experiences have given me the tools that I need to be useful in an emergency. None of my involvement in actual emergency communications was spent sending traffic via the NTS or using approved ARRL message format. In retrospect, my training at the hands of USAF MARS or the NTS was not critical to my efficiency as an emergency communicator. This brings me back to my original topic—contesting.

If you have the desire to compete (at whatever level) in a major contest, you have, at your fingertips, a method to vastly improve your operating skills. Contests are quick exchanges under extremely congested band conditions. Your ability to pick out call signs, reports and exchange information while enduring the crud on the band during a contest will serve you well when performing duties as an emergency communicator.

During a contest the pressure is on. In order to be competitive, a good contest operator must be able to snag portions of calls, reply quickly, get a fill on the call sign, send and receive the exchange of information and move on... all within seconds. Good contest operators handle six or more QSOs per minute, for sustained periods of time. This skill takes a lot of practice.

The pressures encountered in contesting are self-inflicted. In an actual communications emergency pressures encountered by ARES or RACES operators are imposed by the situation or personnel outside the control of the operator. If an emergency coordinator is used to functioning under pressure generated in contesting, it will be much less traumatic for the operator during an actual emergency. This has the added benefit of allowing the ARES or RACES operator to have a clear head during a crisis and lessens the chances of panic or unnecessary emotional involvement when these behaviors are least desired.

In addition to the emergency communications training aspect, contesting can be fun. Few contesters enter a major contest with the idea of actually winning. Most have personal goals to beat from last year's event. Many just like to bang it out on the bands for the fun (?) of it. Whatever the

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reason, give contesting a try. With the emergence of extremely powerful contest logging programs like K8CC's NA and K1EA's CT, real-time logging, duping and after-the-contest log submissions are a breeze. Both these programs feature the ability to control a CW and voice keyer from the computer keyboard. This brings me to my final point regarding the need for QRPers to enter the contest arena.

Contesting is extremely hardware and technology intensive. If you are going to be competitive as a contester, you must constantly look for ways to increase your QSOs and reduce the time between contacts. Real-time computer logging is one way. CW/voice keyers controlled by the logging program and the computer is another. DX spotting via the DX Packet Cluster is yet another. Don't forget the new buzzword: "digital signal processing." DSP is the new-wave technology that will greatly improve the performance of the next generation of transceivers. By seriously entering the contest arena you are forced to gain experience and knowledge of software, computer interfacing, peripheral hardware and DSP techniques in order to avail yourself of these time-savers. In effect, you become a better Amateur Radio operator by increasing your knowledge of your craft.

Now a word about nutrition. The normal stereotype of a contester shows the operator hunched over the radio sport-

ing a two-day growth of beard, bleary-eyed and foul-breathed. Littered around the operating position is a large collection of empty Jolt cola cans and coffee cups. Pizza crusts are embedded in the carpet beneath the operating table. Sound familiar?

In reality, nutrition can make the difference between becoming tired during and after the contest or maintaining good physical stamina for 48 hours. Several doctors whom I have spoken with regarding nutrition and contesting all say that, in order for the body to sustain an elevated metabolic rate for extended periods of time, it must be doing something. Since you are sitting down in front of the radios, you aren't exactly breaking a sweat, physically. However, you can make the body "do something" internally.

Eating the proper balance of protein and carbohydrates in the proper order will keep the body busy, the metabolism elevated and you more alert for extended periods of time. Stay away from fats, alcohol, caffeine, and simple carbohydrates. Instead, opt for proteins and complex carbohydrates, with the proteins being eaten *before* the carbs. Poached or hard-boiled eggs, various fruits and small servings of lean meat are the ticket. Several small servings of food ingested at regular intervals rather than a large meal prior or during a contest will greatly extend your metabolism. As long as the body is doing something, fatigue will be slower in coming. Hence, you can stay awake longer, at a more alert level, which translates into higher contest scores. Tea and coffee are okay, provided they are not used as a sleep substitute. If your well-meaning significant other offers you a plate of bacon, toast and jelly and eggs over easy, decline. This will bog your system down, and soon you will be yearning for sleep.

Next to QRPers, serious contesters are probably the most knowledgeable antenna people in the hobby. Antennas play an important part of any station. This is especially true of a contest station. Even more so for a QRP contest station. Bigger arrays on higher towers are the by-words of the avid contester. While most contesters will agree that some form of rotatable beam

antenna is crucial to the success of any contest station, do not discount what can be done with wire antennas and properly installed verticals. Grab the *ARRL Antenna Book* and start getting smart on antennas and feedlines. Look over your antenna farm and figure out how you can make improvements without hocking the family jewels. Jim Kearman, KR1S, scored over three million points in a recent QRP ARC1 QSO party using only dipoles and a Ten-Tec Argosy running at 5W! While Jim is an accomplished contester and DXer, he is also an avid QRPer. What works for him in the high-power arena works in his low-power pursuits as well.

This month's column has tried to tie contesting in with other Amateur Radio pursuits. I hope you will give contesting a try and experience, first hand, the fun and excitement that can become extremely addictive.

Note: Last month I stated that N6RJ's 2nd OP software program was capable of tracking WAS and WAZ for satellite operators. This was a mistake as the 2nd OP will not track WAS data for awards. The statement should have read: "It is the *only* logging program which specifically accommodates the satellite operator by tracking satellite DXCC and WAZ!" 73 es Gud DX, Rich. WR

Call cliches

I often wonder about several cliches continually heard on the phone bands.

"Callsign—for I.D."—I'm waiting to hear a good reason other than identification for giving one's callsign.

"Roger, Roger" with the apparent intent of saying "yes." "Roger" or "R" means "all received" and does not mean "yes" or "agree," etc. Is there anything wrong with a simple "yes"?

"QSL" to mean something, I'm not quite sure what, but I sort of think "received OK." But when someone asks me if I "QSL the information" I generally tell them I answer all cards received, preferably via Bureau.

Just for the record, I think it would sound better if we answer questions with a simple "yes" or "no" ("c" or "n" on CW) and acknowledge transmissions with a simple "R" or "Roger" or (why not?) "Received all."

Finally, since "73" means "best regards," does saying "73s" make much sense? "Best regardses"? Just plain "73" is just fine. *Penn Wireless Association, PA*



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OLD-TIME RADIO



History of VEC testing

JIM GEORGIAS, W9JUG

The US government has prepared and administered Amateur Radio operator examinations for 70 years. The Radio Act of 1912 provided the basis for the first tests. Since the early days of radio, amateur tests have been in a constant state of evolution and change. Primarily due to budgetary constraints and personnel cutbacks, the government decided to remove themselves from the administration of most radio license examinations.

On 13 September 1982 Congress enacted legislation (Public Law 97.259) which amended the Communications Act of 1934. This allowed the FCC to accept the volunteer services of Amateur Radio operators to prepare and administer Amateur Radio Service examinations. A month later, the ARRL filed a petition requesting the implementation of Public Law 97.259, and proposed that only "non-profit educational organizations" be allowed to participate in the testing program.

During early 1983, the Commission issued a Notice of Proposed Rule Making that looked toward getting the volunteer testing program underway. The FCC proposed two amateur administrative examining levels: the volunteer examiner coordinator (VEC) and the volunteer examiner (VE).

The VEC would act as an administrative liaison between the FCC's Gettysburg, Pennsylvania, licensing facility and the volunteer examiners who administer the ham radio

tests. Questions submitted from the amateur community based on the FCC study guides were submitted. All the questions would form the bank of questions.

Only amateurs having a higher class license than the applicant can administer the written examinations. Later on, however, the FCC stipulated that only Extra and Advanced Class amateurs could administer any of the code tests above the Novice level.

The FCC implemented the new volunteer testing program (above the Novice Class) in the Amateur Radio Service on 22 September 1983. It allowed anyone, provided that conflict of interest provisions were satisfied, to participate. This resulted in ham testing, which had previously been done by government employees, to be administered by volunteers in the private sector. The FCC estimated that it would cost the taxpayer \$7.26 for each Amateur Radio operator test it administered. A month later, the FCC issued a public notice advising the amateur community that they were recruiting organizations to assist

them with the testing and licensing function.

On 26 June 1984 the FCC announced that 1984 would be the last year they would administer Amateur Radio operator examinations. They had already proceeded to accept applications for VECs that could handle the paperwork on a call sign area, regional basis. Thirteen regions assigned: one for each call sign district and the three areas outside the continental US limits. Call sign districts one through zero became Regions 1 through 10; Region 11 is Alaska; Region 12 is the Caribbean Insular areas (which included Puerto Rico and the US Virgin Islands); and Region 13 is the Pacific Insular area (which includes Hawaii and the US South Pacific Island possessions). To become a VEC, the FCC required that the individual or group enter into an agreement with the government.

The VECs approve (or accredit) all volunteer examiners. A team of three volunteer examiners administer the examinations. The test results along with the appropriate application forms, amateur license photocopies, and any attachments are given to the VEC, who then screens them for completeness and authenticity. The correctly completed 610 form is then forwarded to the FCC's licensing facility in Gettysburg, Pennsylvania, for the licensing issuance.

Several organizations felt that the ARRL would immediately apply to become a national VEC. They refused, however, stating that they would not enter the program until they would be allowed to charge a testing fee. After Congress passed enabling legislation, the commission adopted a Notice of Proposed Rule Making (NPRM) on 6 March 1984 proposing to reimburse the VECs and the VEs for incurred out-of-pocket testing costs. The NPRM set a fee limit of \$4 for testing costs for preparing, processing, and administering examinations for amateur station operator licenses. A provision in the rules for license "fee" increases based on inflation was adopted.

The Anchorage VEC in April 1984 was the first organization to administer an Amateur Radio examination under the new VEC program. The Dayton Amateur Radio Society followed in late April 1984 and then the Devry Amateur Radio Society followed in May 1984. Effective 1 January 1987 the volunteer examiners received permission to design their own written examinations. WR

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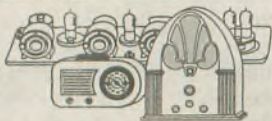
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*You may get a large amount of truth
into a brief space. —Henry W. Beecher*

CONSTRUCTION

The art of troubleshooting

DON RADUZINER, W6BDD

Troubleshooting electronic equipment is sometimes a major task for radio amateurs. Historically troubleshooting equipment has been a self-taught art form mastered by relatively few individuals. This article is intended to be a brief guide to a basic approach.

It is best remembered that an individual can master the art of troubleshooting only through constant practice over a period of time. As with all creative activities, each act of troubleshooting has a beginning, a logical procedure which is followed, and a termination. If the person follows each step of the process in its appropriate order, it will lead to a successful solution.

With troubleshooting I have found there are three steps: 1) Analysis; 2) Setting up initial limits; 3) Reduction of these limits.

The analysis is a search for clues which allows initial limits to be set within which the malfunction must be located. Further analysis allows you to continually reduce these limits until you have isolated the problem to its precise location.

When troubleshooting, it is suggested that you think in terms of the block diagram of the equipment rather than detailed schematics, because they are less complicated and the results will be reduced errors.

Before I discuss a common troubleshooting technique, I caution you against two acts which separate the master troubleshooter from the novice. Invariably, the novice approaches the equipment with the finesse of a steamroller. The panels fly off, circuit boards come out and test leads from a multitude of test equipment are connected in an effort to solve the problem. The result is always a prolonged, confused work effort which irritates everyone and accomplishes little. It is also embarrassing if the equipment is spread all over and the problem is finally isolated to a defective or poor connection.

The second act involves the task of measurement. Each step of analysis requires some form of measurement. These measurements, called checks, can be through the use of the senses sight, touch, hearing and even smell- ing), or through instruments. Use the

simplest instrument available which is capable of making the check. Do not fall into the trap of using the most sophisticated scope to measure a simple DC voltage. More time could be spent adjusting the scope and interpreting the results than would be spent making the entire measurement with a simple VOM.

I use the "front panel" approach to aid me in troubleshooting. Front panel analysis is the first act to be performed in troubleshooting. It includes talking to the operator to determine what he thinks is wrong as well as setting up and running the equipment to detect from its operation likely points of trouble. In most instances, front panel analysis lets you set up the initial limits of the problem. The following is a typical example of "front panel" analysis.

Bob Q. Amateur purchased an all-band, 100W solid state transceiver at a local hamfest. After digesting the operations manual, tuning the transceiver followed. Bob observed:

1. Power output (on internal wattmeter) indicated 100W with the carrier level control at maximum. With Bob's

wattmeter in the antenna lead, it read 35W.

2. Using a 50 ohm dummy load, the indications remained the same.

3. The internal wattmeter of the transceiver was able to be switched to read voltage and current on the final output stage. Bob calculated the power input to the finals was less than half the normal value. The internal wattmeter still indicated 100W.

4. When the transceiver was connected to a linear amplifier (100W required to drive amplifier to 1000W output) the linear produced only a few hundred watts.

5. Aside from low power indications on the external wattmeter and normal power indications on the internal wattmeter, all else appeared normal.

From these four facts observed, the following conclusions can be reached:

1. Bob believed his wattmeter to be more accurate than the internal transceiver's wattmeter because of prior use of his wattmeter with other equipment.

2. The transceiver's output was not being reduced due to excessive SWR. Bob used a 50 ohm dummy load.

3. The transceiver's meter validates low output using the voltage X current calculation for power input.

4. Linear amplifier output was low due to inadequate drive from the transceiver.

From this brief exercise, Bob can set his initial limits with absolute confidence that he is right. He could completely eliminate the internal wattmeter reading as being accurate as far as power indicated. The problem could still be in the following areas: calibration of the transceiver's internal RF power adjustments; a bad component in the final stage causing final output transistors not to draw enough current to produce the rated RF power; or insufficient RF drive to the final output transistors.

Bob found the problem by looking at the block diagram of the transceiver. The internal metering circuit was not actually sampling power developed in the RF stages of the transceiver. Instead it sampled the value of the carrier level control. With this control at maximum, it was telling the internal wattmeter always to indicate 100W.

Bob determined that 1) there could be a hard component failure in the RF section or; 2) the internal RF output control adjustment was not calibrated to coincide with the carrier level control. A screwdriver adjustment to the RF output control increased the RF output power to 100W with the carrier level control set at maximum. Now the internal wattmeter, carrier level control, and RF output all track each other. The transceiver was previously owned by a QRP enthusiast!

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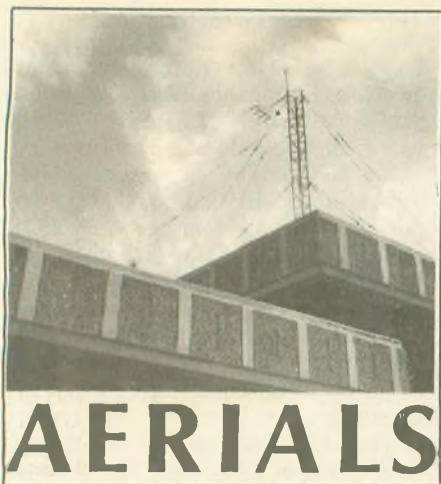
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Since we must accelerate your studies so you can go quickly out into the workplace and revitalize America, my Secretary of Education, Madonna, has proposed that what we consider to be the unnecessary frills of academia such as homework, papers, tests, examinations, theses and lab work, be abandoned.

For those who ask how can we afford all this, all I can say is, picky, picky, picky; you are heartless reactionaries with no compassion for your fellow person.

If you vote for me, I will appoint to cabinet rank Marty Lane, H20BH, as coordinator of DXpeditions.

We can have only 10 DXpeditions at the same time because my Secretary of Defense, Ed Asner, will have mothballed three of our aircraft carriers. Check with Marty for where you want our remaining carriers to take you. Whatever rock of reef you want, it's yours, all FREE! However, you will have to pay for the gasoline that the helicopter uses taking you and the equipment from the deck of the carrier

to the site. I sure don't want people saying Kurt N. Sterba is some kind of tax, borrow, spend-and-elect president. I will allow QSL cards to be mailed at half the normal rate for postcards.

Ooops, almost forgot hand-holds for those VHF folks. Send in your application to Chairman, FCC, and one will be sent to you, FREE. The Washington, DC address on "M" Street. Well, you'll just have to look it up yourself, how will you ever build up any backbone if everything is just handed to you?

My final promise is the end of TVI. I'll just issue an executive order that all VHF stations move to UHF and thus all VHF space will be empty. No longer will 28 megacycle second harmonics fall into Channel 2. No more Channel 2!

I know I can count on your vote. Between now and election day I'm sure I'll think of some more blessings for the ham humanity. Look for me on your ballot.

Hmmmmmm. Probably need a slogan. How does "Two towers on every lot" sound?

(Is Kurt a Libertarian? A Peace and Freedom? American Independent, Independent? Is his symbol a donkey or an elephant? None, his is the Ham Party, [except in Israel].)

WR

ESTABLISH A HAM TESTING CENTER IN YOUR AREA

As of 1984, all ham radio license testing is handled by the amateur radio community itself. Teams of three Extra Class volunteer examiners (VE's) can now conduct all ham license upgrade examinations.

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Contests

Classic Radio Exchange

Scheduled for 2000 to 0400 UTC 7 and 8 February 1993, the Classic Exchange (CX) is a celebration of the older commercial and homebrew equipment that was the pride of our ham shacks just a few, short decades ago. The object of the contest is to restore, operate and enjoy older equipment with like-minded amateurs. A "classic" radio is at least 10 years old, an advantage but *not* required to operate CX. You can use anything, although new gear is a distinct scoring liability and not as much fun!

Exchange: Exchange your name, RST, QTH, receiver and transmitter type (homebrew send final amp tube or transistor) and other interesting conversation. The same station may be worked with different equipment combinations on each band and each mode. CW call "CQ CX"; phone call "CQ Classic Exchange." Non-participants may be worked for credit.

Suggested frequencies: CW—up 60 kHz from low band edges; phone—3.880, 7.290, 14.280, 21.380 and 28.320; Novice/Tech—20 kHz up from low band edges. 7.060 and 3.560 tend to be the most popular CX frequencies.

Scoring: Multiply total QSOs (all bands and modes) by the following sum: total number of different receivers and transmitters worked on each band and mode plus the total number of states/provinces/countries worked on each band and mode. Multiply that total by your *classic multiplier*: the total age of all receivers and transmitters used, three QSOs minimum per unit to qualify. If equipment is a transceiver, multiply age by two. If homebrew, count as 25 years old unless actual construction date or design is older.

Awards: Certificates are awarded every now and then for the highest score, exotic equipment, the best excuse, and other unusual achievements.

Logs: Send logs, comments, anecdotes and pictures to Jim Hanlon, W8KGI/5, P.O. Box 581, Sandia Park, NM 87047 or Marty Reynolds, AA4RM, P.O. Box 13354, Atlanta, GA 30324. Include SASE for the next *CX Newsletter*.

YL-OM Contest

This contest will take place from 1400 UTC Sat., 13 February to 1700 UTC Sun., 14 February for SSB, and from 1400 UTC Sat., 27 February to 1700 UTC Sun., 28 February 1993 for CW.

Eligibility: All licensed men and women operators worldwide are invited to participate.

Procedure: OMs call "CQ YL"; YLs call "CQ OM."

Operation: All bands may be used. No crossband, net or repeater contacts. On CW or SSB only one contact is permitted with each station on each band.

Exchange: Station calls, QSO numbers, RS(T)s ARRL section/VE province/country. Entries in log must show time, band, date, and transmitter power.

Suggested Frequencies: CW—80M: 3.540-3.725 MHz; 40M: 7.040-7.070 MHz; 20M: 14.040-14.070 MHz; 15M: 21.120-21.150 MHz; 10M: 28.150-28.200 MHz. SSB—80M: 3.940-3.970 MHz; 40M: 7.240-7.270 MHz; 20M: 14.175-14.280

MHz; 15M: 21.380-21.410 MHz; 10M: 28.300-28.610 MHz.

Scoring: (A) Phone and CW will be scored as separate contests. Submit separate logs for each contest. (B) Score each band separately. One point is earned for each station worked on each band. YLs count only OMs; OMs count only YLs. Add together the QSO points earned on each band. (C) Multiply the number of QSO points by the total number of different ARRL sections/VE provinces/countries worked. (D) Each contestant using power output at all times of 100W or less on CW or 200W PEP or less on SSB multiply the score claimed in (C) by 1.5, the low power multiplier. Those not using low power are not entitled to a power multiplier and are limited to maximum power outputs of 750W on CW and 1500W PEP on SSB.

Awards: Cups will be awarded to first place phone YL, first place phone OM, first place CW YL and first place CW OM. Second and third place winners in each contest will receive certificates. Various other certificates will also be awarded.

Logs: All logs must show your ARRL section/VE province/country to qualify for awards. For each QSO, logs must show call of station worked, QSO number sent and received, RS(T), sent and received, ARRL section/VE province/country of station worked, time, band and date. Logs must also state the power output and the operating breaks taken. If you have 200 or more QSOs submit a separate log for each band and submit

a dupe sheet. Remember to file separate logs for each contest. Logs must show claimed score. Logs must be signed and will not be returned. Send logs postmarked no later than 30 days after contest ends to: Carla Watson, WO6X, 473 Palo Verde Dr., Sunnyvale, CA 94086.

New Hampshire QSO Party

The 1993 New Hampshire QSO Party, sponsored by the NH Amateur Radio Association (NHARA), will take place on 13 February from 1900 UTC to 0700 UTC 14 February 1993 and from 1400 UTC 14 February to 0200 UTC 15 February 1993.

Eligibility: This event is open to all license classes. Technicians without HF privileges are invited to join the fun on simplex above 50 MHz and on the various modes found there.

Exchange: Signal report and QTH, county for NH stations; state/VE province/DXCC country for non-NH stations.

Scoring: All stations count one point per phone QSO (AM, SSB, FM); two points per digital QSO (RTTY, CW packet). Contact with the following NHARA contest club stations will count 20 points each: W1ET, WB1CAG, N0CUH, W1WQM, N1ICK, K1RD, KC1OX, NE1K, W1GUA, WB1ASL, WW1G, K1BKE, N1LT, WK1P, and W1OC. Include the 20 points per club station contacts in the total QSO point score before the multiplier. All contacts may only be made once per band per mode. *Multipliers:* NH stations count number of NH counties, states, VE provinces, DXCC countries; non-NH stations count number of NH counties worked only.

Operation: NHARA contest club stations are allowed to operate two transmitters on a single band, one for each mode of operation, phone or digital.

Frequencies: CW—1.810, 3.535, 7.035, 14.035, 21.035, 28.035. SSB—1.875, 3.935, 7.235, 14.280, 21.380, 28.320, 50.115, 144.205. FM—29.610, 52.540, 146.550, 223.500, 446.000, 902.100, 1296.100.

Logs: Logs must be postmarked by 31 March 1993. Include an SASE when requesting summary sheets, contest rules, and with logs and comments for contest results. Send to GEARS, Conrad Ekstrom, WB1GXM, P.O. Box 1076, Claremont, NH 03743-1076.

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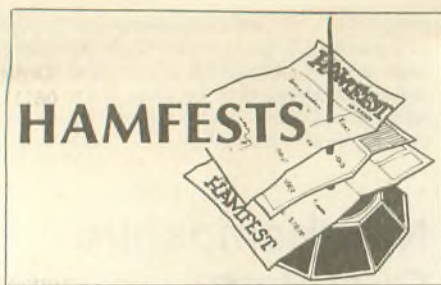
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Florida

THE SARASOTA ARA will sponsor the Sarasota Hamfest and Computer Show from 1 p.m. to 5 p.m. 19 February and 9 a.m. to 5 p.m. 20 February at the Sarasota County Fairgrounds. Features include new products, flea market, tailgating, forums, ladies activities, refreshments, banquet, VE exams and hourly drawings. RV hookups and free parking are also available. Admission is \$5 in advance, \$7 at the door. For tables and booths, contact Hadley Carrigan, N4ODK, 813/388-2868. For admission tickets, write Sarasota Hamfest, Inc., P.O. Box 3182, Sarasota, FL 34230.

Iowa

THE DAVENPORT RAC is holding its 22nd annual hamfest on 21 February at the QCCA Expo Center in Rock Island. Features include expanded parking with one-level handicap accessibility, indoor flea market, commercial exhibits, food, VE exams and door prizes. Admission is \$3 in advance and \$4 at the door. Tables are \$8 each in advance by February 15 and \$10 each after the 15th. Commercial booths and AC hook-ups extra. Talk-in on 146.28/.88. Contact Kent Williams, K9UQI, 4245 10th St., East Moline, IL 61244.

Massachusetts

THE ALGONQUIN ARC is sponsoring the Marlborough Flea Market on 13 February from 10 a.m. to 2 p.m. at the Marlborough Middle School. Admission is \$2. Tables \$10 in advance or \$12 at the door if available. Vendor set-up time is 8 a.m. Talk-in on 146.61, 223.94 and 449.925. Contact KA1PON, Algonquin ARC, P.O. Box 258, Marlborough, MA 01752; 508/481-4988.

Michigan

THE CHERRYLAND ARC is sponsoring a hamfest on 20 February from 8 a.m. to 1 p.m. at the Immaculate Conception School in Traverse City. Features include dealers, food and refreshments. Admission is \$4. Tables are \$5. Vendor set-up time is 7 a.m. Talk-in on 146.86. Contact Ken Musson, W8QKP, 9680 Peninsula Dr., Traverse City, MI 49684; 616/947-1372.

THE LIVONIA ARC is holding its 23 annual Swap'n Shop on 21 February from 8 a.m. to 4 p.m. at the Dearborn Civic Center in Dearborn. VE exams will be given during the afternoon. Admission is \$4. Talk-in on 144.75/5.35 and 146.52 simplex. For more info, send 4 X 9 SASE to Neil Coffin, WA8GWL, Livonia ARC, P.O. Box 2111, Livonia, MI 48151; 313/427-3905.

Minnesota

THE ROBBINSDALE ARC is sponsoring

Midwinter Madness on 13 February from 7 a.m. at the National Sports Center in Blaine. VE exams given Friday evening. Pre-register with Dave at 612/459-8678. Admission is \$4 in advance and \$6 at the door. Vendor set-up time is Friday 4-10 p.m. Flea market set-up time is 6-8 a.m. Saturday. Talk-in on 147.00 simplex. Contact Midwinter Madness, RARC, P.O. Box 22613, Robbinsdale, MN 55422.

Ohio

THE ARRL 1993 GREAT LAKES DIVISION will be 27-28 February from 8:30 a.m. to 5 p.m. at the Cincinnati Gardens Exhibition Center. Features include free parking, everything indoors, drive-in unloading, ARRL officials, ham forums, ladies' lounge, prizes and VE exams. Admission is \$6 in advance and \$8 at the door. Vendor rates from \$18-\$55 per space. Vendor set-up time is Friday afternoon. Contact Stan Cohen, WD8QDQ, 2301 Royal Oak Ct., Cincinnati, OH 45237; 513/531-1011.

THE MANSFIELD MIDWINTER HAMFEST/COMPUTER SHOW will be held on 14 February from 7 a.m. at the Richland County Fairgrounds in Mansfield. Features include an over-400-table flea market in three large, heated buildings and door prizes. Admission is \$4 in advance and \$5 at the door. Tables are \$9 in advance and \$12 at the door, if available. Talk-in on 146.34/94. For info, send SASE to Dean Wrasse, KB8MG, 1094 Beal Rd., Mansfield, OH 44905; 419/589-2415 after 4 p.m. EST.

Oregon

THE SALEM AND OREGON COAST EMERGENCY REPEATER ASSOCIATIONS will sponsor the 1993 HamFair on 20 February from 9 a.m. at the Polk County Fairgrounds. Features include giant flea market, exhibits and commercial dealers. Admission is \$5 in advance and \$6 at the door. Talk-in on 146.26/.86. Contact Salem Repeater Assoc., P.O. Box 784, Salem, OR 97308.

Pennsylvania

THE COLUMBIA AREA ARC is sponsoring the Dutch Country Computer and Communications Show on 6 February from 9 a.m. to 3 p.m. at the Lancaster Host Golf Resort and Conference Center in Lancaster. Features include manufacturers, retailers and suppliers of computers and peripherals, computer supplies, software and books, amateur communications equipment, all indoors, free parking. Admission is \$5 at the door, children under 12 free. Contact CAARC, P.O. Box 574, Columbia, PA 17512; 717/627-1597.

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THE APPALACHIAN ARG will hold their fifth annual Hamfest and Computer Show on 27 February from 8 a.m. at the Lebanon Fairgrounds in Lebanon. Features include plenty of parking, easy access, handicapped accessible indoor, food available and VE exams at 9 a.m. (pre-registration requested). Admission is \$4. Children under 12 free. Indoor tables \$8. Tailgating \$3. Vendor set-up time is 6 a.m. Talk-in on 146.04/64. Contact Homer Luckenbill, WA3YMU, 105 Walnut St., Pine Grove, PA 17963; 717/345-3780.

Tennessee

THE KERBELA ARS will sponsor the Kerbel la Hamfest on 6 February from 8 a.m. to 4 p.m. at the Kerbel Temple in Knoxville. VE exams at 10 a.m., pre-register by 9:30 a.m. Admission is \$2. Tables are \$8 plus admission. Tailgating is \$3 plus admission. Vendor set-up time is from 4-9 p.m. Friday and 5-8 a.m. Saturday. Talk-in on 146.34/94. Contact Paul Baird, KY4A, 1500 Coulter Shoals Cir., Lenoir City, TN 37771; 615/986-9562.

Texas

THE ORANGE AMATEUR RADIO CLUB will sponsor Orangefest '93 on 27 February at the VFW Hall in Orange. Features include dealers, flea market, refreshments, free parking and VE exams. Admission is free. Tables for dealers are \$15, for individuals \$5. Talk-in on 147.18. Contact Irene Thomas, N5GNF, Orange ARC, P.O. Box 232, Orange, TX 77630; 409/745-3061.

Vermont

THE NORTHERN VT/NY WINTER HAMFEST COMMITTEE will sponsor a hamfest on Saturday, 27 February, from 8 a.m. to 5 p.m. at Milton High School. Features are to include an indoor flea market, forums, demos, auction and two VE exam sessions (9 a.m. and 2 p.m.). Admission is \$2; tables are free, first come, first served. Talk-in on 145.47(-600) or 146.85 (+600). For more information contact Mitch Stern, WB2JSJ, 802/879-6589; or Joe Tymeck, N1DMP, 802/893-6458.

Washington

THE MIKE & KEY ARC is sponsoring an electronics show and fleamarket on 6 March from 9 a.m. at the Western Washington Fairgrounds in Puyallup. Features include ham gear, computers, consignment store, snack bar, free overnight RV parking and VE exams. Admission is \$5 at the door before noon and \$3 after noon. Tables are \$22, booth with food tables \$88. Vendor set-up times 2-8 p.m. Friday and 6-9 a.m. Saturday. Talk-in on 146.82R (F103.5). Contact Michael Dinkelman, 637 2nd Ave. S., Kent, WA 98032; 206/854-4031 (5-9 p.m. PST).

Puerto Rico

THE PUERTO RICAN ARL, PUERTO RICAN RC, PUERTO RICAN RAF AND RADIOSCAN MAGAZINE are sponsoring the Caribbean Hamfest and Computer Show 20-21 February at the Rubén Rodríguez Coliseum in Bayamón, Puerto Rico. Features include exhibitions, flea market, prizes and VE exams. For info, contact Lisette Machado, Radioscan magazine, 8250 NW 27th St., Ste. 301, Miami, FL 33122; 305/594-7734.



NEW PRODUCTS

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Tokyo Hy-Power transverter

The HX-650 transverter from Tokyo Hy-Power Labs allows operation on the 50 MHz band using your HF (28 MHz input) transceiver; 50W output power and dual function preamplifier circuit on receive offer



outstanding performance. Built-in remote control circuit for easy TX/RX switching. Antenna mismatch protection circuit protects RF power transistor.

Suggested retail price \$499. Distributed by Orion Business International, 7560 N. Del Mar Ave., Fresno, CA 93711-6856; 209/432-4155; FAX 209/432-3059. □

DC power outlet

MFJ Enterprises, Inc. announces the new MFJ-1116 Deluxe DC power outlet with voltmeter, switch, and fuse—\$44.95.

Need a neat and easy way to distribute 12VDC to various transceivers and accessories? The new MFJ-1116 is the ideal answer! This multiple DC power outlet strip features eight terminals for connecting rigs and keyers, TNCs, tuners, etc. Output voltage is continuously monitored on its built-in voltmeter.



The MFJ-1116 has a heavy-duty master power switch and 15 amp fuse. Each of its eight outlets utilize heavy duty five-way binding posts with standard spacing for dual banana jacks. Outlets are also RF bypassed. Strip measures 2.75 x 13.5 x 2.5 inches. The MFJ-1116 can be installed on the rear

of your desk and be used to eliminate "haywires." Perfect for experimenters and clean station enthusiasts alike! Built-in meter is a great aid for studying loads.

It comes with MFJ's full one year unconditional guarantee. For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762; 601/323-5869; FAX 601/323-6551; or order toll-free at 1-800/647-1800. □

Your Packet Companion

Your Packet Companion, the latest addition to the ARRL *Companion* series, is written specifically for Amateur Radio operators who are exploring packet radio for the first time.

Your Packet Companion cuts through the jargon with clear, easy-to-understand explanations. The author, Steve Ford, WB8IMY, describes how packet radio operates and provides details on how to set up a basic packet station.

The book shows the reader how to use automated bulletin boards to send and receive mail, send bulletins and access many other features. Networks such as DX Packet-Clusters are discussed in detail. Informative tables and sidebars appear throughout the book.

Your Packet Companion invites readers to explore packet even further, offering tantalizing glimpses of network alternatives such as ROSE, TCP/IP and TexNET. Readers are also shown how to use the many Amateur Radio packet satellites now in orbit.

Copies of the book are available for \$8 plus \$3 mail, \$4 UPS, from most Amateur Radio dealers or ARRL publication sales (Order #3959), 225 Main St., Newington, CT 06111, 203/666-1541.

Palomar digital display

Palomar Engineers is now manufacturing a digital frequency display for classic transceivers including Atlas, Swan and Drake. Many of these older transceivers are still in use. They work well and sound good but they lack one feature now considered essential: a digital readout.



Palomar's Model PD-700 digital frequency display adds this capability. It uses a dual oscillator system to provide absolute accuracy of 100 Hz. This is more accurate than the displays on some of the newer rigs! The frequency is displayed on a six-digit bright red LED with .4 in. digits. It has continuous coverage from 1.5 to 30 MHz to cover all amateur bands (including WARC bands), shortwave broadcast, etc. It works with Atlas

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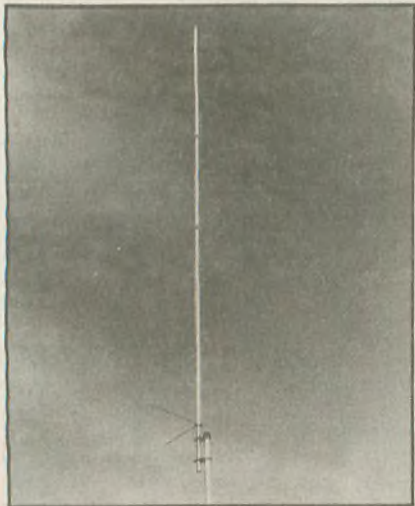
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180, 210/215, 210X/215X, 100MX, all Swan tube type transceivers, Drake TR-3, TR-4, R4C/T4XC, Heath HW-9, and Ten-Tec Omni. Price is \$199.95.

For further information contact Palomar Engineers, Box 462222, Escondido, CA 92046; 619/747-3343; FAX 619/747-3346.

Cushcraft dualbander

Cushcraft's new ARX270 is now available. With 9dB VHF and 12dB UHF gain, the ARX270 features non-metallic joints to eliminate pattern distortion and maintain a low



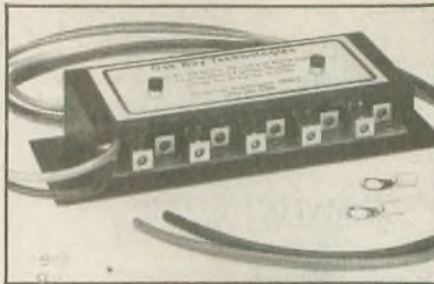
angle of radiation to keep the signal on the horizon, where it belongs. The new antenna has a VSWR under 2:1 for the entire 2M and 70cm bands.

The 16.5 ft. ARX270 incorporates a rock-solid printed circuit matching network for high stability operation. The ARX270 has a wind survivability of 90 mph and its UV-stabilized Gel-Coat fiberglass radome will keep the five-pound all-american dualbander looking new for years.

A factory-installed pigtail feed makes weatherproof connections a snap. Available with either UHF or type-N connector (a no-charge option), the ARX270 is factory-tuned and includes steel mounting hardware. Compact shipping dimensions eliminate costly "oversize" shipping rates. The ARX270 is available from Amateur Radio dealers worldwide.

Oak Bay power strip

Oak Bay Technologies' super duty Model PS-101 12V power strip is unique to the Amateur Radio market. It features five separate outputs, each individually fused, with the ability to handle 50 amps total (not to exceed 32V). It provides a complete, easy and safe interface between external equipment and a single source power supply, putting an end to cumbersome multiple connections.

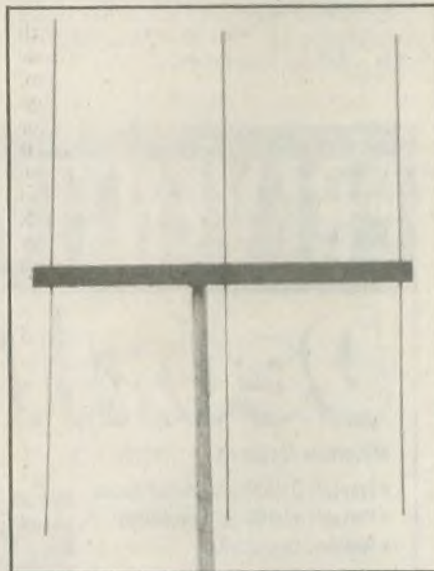


The strip contains two 30A fuses and three 20A fuses, along with five feet of 8-gauge copper wire and two ring lugs for connecting to the power supply. The enclosure is manufactured from rugged 20-gauge steel for exceptional sturdiness and vibration resistance. It houses five 5 AG fuses that are 13/32" diameter and 1-1/2" long and which are readily available from amateur dealers around the country. Dimensions for the Model PS-101 are 10 x 3.2 x 1.7 inches. It's available through your local Amateur Radio dealers for a suggested list price of \$79.95.

MFJ-1763 beam

MFJ Enterprises, Inc. announces the unique MFJ-1763 portable three-element beam for 2M, only \$39.95.

Here is the perfect way to add new life to your existing 2M transceiver or enjoy your new 2M rig in top style. The new MFJ-1763 is



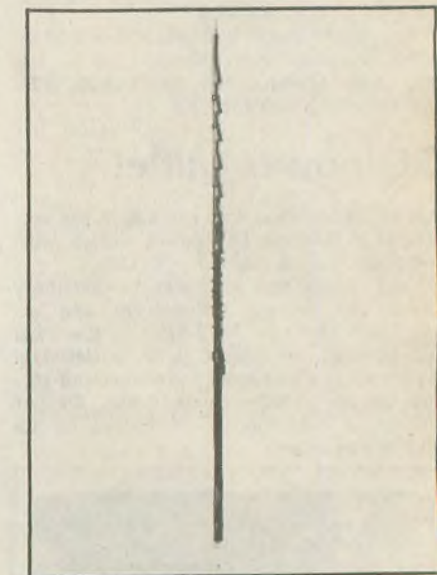
a high performance and portable beam for 2M. Its compact 2.75 ft. boom gives you a calculated gain within 1dB of a four-element Yagi to reach areas not possible with simple verticals. This beam's extra gain and directivity truly make the difference between noisy communications and solid copy.

The MFJ-1763 utilizes threaded elements that simply screw into the boom. It is easy to store and transport, sturdy enough for fixed station use, and it can be set up or taken down in only seconds! The MFJ-1763 can be mounted vertically for use on FM or horizontally for SSB. Can also be mounted on the leg/side of a tower. Great for packeting and Packet Cluster DXing. Uses extra-thick elements to maintain high gain and directivity plus low SWR over full 2M band. A ferrite choke balun gives excellent feedline decoupling. Coax coupling further reduced by rear mounted SO-239 connector. Elements and boom are made from strong lightweight aluminum that is protected by MFJ's permanent molecular bond technology. This exclusive coating is so tough that it won't come off unless the metal disintegrates! Boom is 30.5 x 1.75 x 1.25 inches. Includes U-bolt for mounting. A great way to expand your 2M enjoyment!

It comes with MFJ's one-full-year unconditional guarantee. For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762; 601/323-5869; FAX 601/323-6551; or order toll-free at 800/647-1800.

Outbacker Perth

Outbacker antenna sales announces the arrival of their new low profile, high performance all band HF mobile antenna. Built in Western Australia by Terlin Aerials, the Perth is backed with over 20 years of manufacturing experience and proven design in the rugged outback of Australia where high frequency operations are crucial.



The Perth is composed of a 4 ft. fiberglass shaft and a 3 1/2 ft. sleek stinger. The shaft offers fast easy manual band switching, and the stinger assures simple SWR adjustments. The Perth can be installed on any standard 3/8 x 24 mount, bumper or trunk lip and is rated at 150W PEP. The stinger retracts inside the fiberglass shaft for easy stowage. 75 through

Trunk Lid Mount \$24.95

This Flat black NMO-type mount is perfect for your car. It comes in an all black look to fit today's car styles. 12 feet of coax with PL259 end (BNC also available). 1/4 wave whip comes with cutting instruction for 144 to 450 MHz. (dual band, 5/8 & cell avail.) Fits easily onto most trunks. This is not only a great buy, but is also a great looking trunk mount!



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MPD 3"	160-80-40M hi-performance dipole 112" long	978
SSD 8"	160-80-40-20-15-10M space saver dipole 71" long	3125
SSD 5"	80-40-20-15-10M space saver dipole 52" long	3125
SSD 4"	80-40-20-15M space saver dipole 46" long	60

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OM band switching is accomplished via wander lead, a shorting lead used on the exterior of the shaft. The Perth is also ideal for marine and condo use.

For information, contact Outbacker antenna sales, 330 Cedar Glen Cir., Chattanooga TN 37412; 615/899-3390.

KLEAR contact cleaners

Tayo Industries is proud to present a new line of contact cleaning agents for audio and video enhancement.

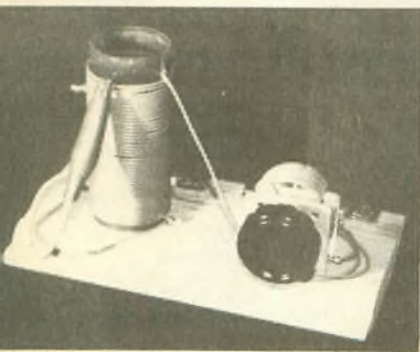
The KLEAR line of Physonic™ solutions are the ultimate in electrical contact enhancement liquids for improving signal transfer at the contact interface. The solution is activated simply by placing a drop at each end of an interconnect cable, then making and remaking the connection to spread the liquid. This causes a significant improvement in the quality of audio and video signals. Physonic™ solutions will not corrode connectors or leave a harmful residue on equipment.

The KLEAR line of Physonic™ solutions are \$3 a bottle and are available only from Tayo Industries, Dept. 2412, 7510 Sunst Blvd., Suite 537, Hollywood, CA 90046; 310/765-0782.

Pill Bottle Antenna Tuner

DWM Enterprises announces the Pill Bottle Antenna Tuner, a unique and fully operational novelty item made in the USA!

The Pill Bottle Antenna Tuner is equipped with just two rugged parts. The tuner's inductor form is a pharmacy pill bottle. It's wound with durable, #22 wire and tapped at various intervals along the coil to cover the 80 through 100 MHz bands. An alligator clip is used to tap the individual bands of operation. Tuning for lowest SWR is accomplished with a high quality, Jackson Brothers 365pF variable capacitor.



The inductor and variable capacitor are mounted on cedar wood stock giving the tuner beautiful "old fashioned" look. The use of alligator clips (for input and output connections) also enhances that look.

A variety of antenna designs have and can be used with the tuner. Experimentation is encouraged. The tuner has been tested to over 50W output without arcs or sparks!

The Pill Bottle Antenna Tuner is great for both QRP and QRO, portable or shack operation, new rigs or old "boat anchors." It's also the lowest priced antenna tuner on today's radio market! Can also be used by SWLs on

their communications receivers! It costs \$27 (plus \$3 shipping and handling when ordered direct from DWM). This is not a kit! It's completely assembled and bench tested before shipment! Inquire at your ham dealer or order direct from: DWM Enterprises, 103, 1709 N. West Ave., Jackson, MI 49202.

MFJ switchboxes

MFJ Enterprises, Inc. announces release of the new MFJ-1272B and MFJ-1272BX TNC/MIC switchbox for quick and easy packeting.

MFJ's new TNC/MIC switch is the most clever accessory yet for packet radio setups. It lets you switch between your microphone and TNC or multimode controller by pushing a



single button, and everything plugs in: no soldering or wiring of complicated cables is necessary! Plug the prewired cables into your rig's microphone socket, TNC/multimode controller socket, and you are ready to operate! The small switchbox measures only 1.25 x 3.25 x 4 inches, and fits anywhere. No more unplugging microphone or TNC cables to swap modes. Super convenient!

MFJ's new TNC/MIC switch works with HF, VHF, and UHF radios using eight-pin mic connectors. This includes Kenwood, Icom, Yaesu, Alinco, Ranger, and more. Simple plug-in jumpers let you quick-set the switchbox for operation with virtually any transceiver and it comes factory set for Kenwood and Alinco. Includes easy to understand instructions and has audio in and speaker jacks. The black finish matches any transceiver. Once you install this switchbox, you will wonder how you ever got along without it!

Model MFJ-1272B, which costs \$34.95, is for MFJ TNCs and multimode controllers, and TAPR TNC2 clones. Model MFJ-1272BX is \$39.95 and is wired for connector on AEA PK-232. It comes with MFJ's one full year unconditional guarantee.

For more information or to order, contact any MFJ dealer or MFJ Enterprises, P.O. Box 494, Mississippi State, MS 39762; 601/323-5869; FAX 601/323-6551; or order toll-free at 800/647-1800.

VOX CONTROLLER

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Amateur software for Amiga

Looking for that hard-to-find ham software for your Amiga computer? I have collected a number of disks full of public domain and shareware Amateur Radio related software for Amiga computers. Included are Morse trainers, packet terminals, WEFAX, MIN-MUF, SSTV, contest logs, electronic circuit designers, AmigaNOS for packet, and much more.

A set of 12 disks (over 8MB), is available for \$29.95 (includes shipping). Individual disks are also available.

To order send check or money order to Kinetic Designs, P.O. Box 1646, Orange Park, FL 32067-1646. Include your name and address requesting "Amiga HAM 12pak," or send an SASE with two stamps' postage requesting "Amiga disk catalog."

New radio store

A new Amateur Radio store has opened in Sacramento, California. The Sacramento Amateur Radio Store offers interested amateurs a little extra; for instance, free Amateur Radio licensing classes. These aren't your memorize-the-questions classes; rather, they provide actual hands-on learning, covering everything from the FCC Part 97 Rules, safety in erecting and climbing a tower, setting up and operating a station, as well as electronic theory. Students also hear talks by representatives of the ARRL, the amateur auxiliary to the FCC, the VE program, the local radio clubs and various emergency services.

A completely equipped and operational radio room is open for the use of any licensed radio amateur. Newly licensed amateurs who do not yet have a station setup are especially welcome to make their first on-the-air contacts in the radio room; experienced volunteer General through Extra Class amateurs are there to assist them through those first nervous moments.

Other services include free loan of used equipment for public service events; use of large enclosed parking lot for club activities and hamfests; and use of the facilities for club or group special event operations.

There is a lounge area for amateurs to relax, visit and enjoy the selection of Amateur Radio and electronics magazines and books on the swap table, and there is a "freebie" section for amateurs to replenish or clean out their "junk boxes." Plans are also in the works to provide classes in advanced theory and design for the homebrewer.

The Sacramento Amateur Radio Outlet is also a factory-direct dealer for many of the most popular brands of amateur equipment, complete with a full service and repair department. They are located at 4020 #C California St., Carmichael, CA 95608; 916/944-7302.

Stretch Antenna?

I sat in the tent calling CQ Field Day at 900 mihwatts of RF. Suddenly a weak slow call signed UA1. Next an SM5 tail ended, followed by RA3 and LA2. I tuned around. The DX wasn't calling anyone else in the US. Why were they all calling me? Could it be my 70 ft long Stretch 20 up 35 feet in the trees?

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VE exam schedules

As a service to our readers, Worldradio presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register

w/i=walk-in

Date	City	Contact	Notes	Date	City	Contact	Notes
Arizona				Nevada			
Mar. 6	Tucson	Joe, K7OPX 602/886-7217	w/i only	Mar. 20	Minden	W7QO 702/265-3430	w/i
Arkansas				Mar. 13	Reno	Don, WS2Z 702/851-1176	w/i
Mar. 13	West Memphis	Gene, AB5BL 501/739-4029	w/i OK	New Jersey			
California				Mar. 20	Bayonne	Bob, N2IYY 201/435-5953	w/i OK
Mar. 13	Adelanto	Arnie, NF6I 619/241-4732	w/i OK	Mar. 18	Bellmawr	WA2VQG 609/546-7710	w/i
Mar. 21	Berkeley	Gary, N6YBD 510/530-0544	w/i only	Mar. 13	Cranford	24-hr hotline: 201/377-4790	
Mar. 20	Culver City	Walt, KM6MQ 714/373-6077	w/i only	Mar. 10	Fort Monmouth	MARS 908/532-5354	w/i
Mar. 20	Cupertino	KJ6EP 510/791-6818	w/i OK	New York			
Mar. 21	Eureka	707/826-0767	w/i OK	Mar. 17	Lancaster	Chuck, WD2AIK 937-3592	p/r only
Mar. 27	Fairfield	Jerry, AA6NO 916/662-0801	w/i only	Mar. 27	Lockport	Bob, KA2EGC 716/433-4584	p/r only
Mar. 2	Fremont	WZ6Y 209/295-7947	w/i only	Mar. 6	North Tonawanda	Vern, AA2AC 716/634-5276	p/r only
Mar. 13	Jackson	W6LRF 714/847-6370;	p/r pref.;	Mar. 7	Yonkers	Emily, AC2V 914/237-5589	w/i OK
Mar. 25	Long Beach	W6XX 209/883-2968	w/i OK	North Carolina			
Mar. 13	Modesto	415/883-9789	w/i OK	Mar. 13	Leicester	Larry, WB4PLA 704/683-1400	w/i OK
Mar. 6	Novato	Harry, KM6LO 818/810-0442	w/i OK	Mar. 27	New Bern	Andy, W4ULD 919/726-5924	w/i
Mar. 6	Ontario	Kenna, KR6M 916/243-6339	w/i OK	Ohio			
Mar. 13	Redding	408/255-9000	w/i OK	Mar. 6	Cincinnati	Herb, WA8PBW 513/891-7556	w/i OK
Mar. 20	Redwood City	Lyle, AA6DJ 916/483-3293	w/i OK	Mar. 18	Youngstown	James, N8IRL 216/534-1394	w/i limited
Mar. 20	Sacramento	AA6IY and KG6XF		Oklahoma			
Mar. 13	San Jose	408/255-9000		Mar. 19	Pawhuska	KY5J 918/337-4335	w/i OK
Mar. 13	San Pedro	Elvin, N6DYZ		Oregon			
Mar. 20	Stockton	Ed, N6XMA 209/952-5996	w/i only	Mar. 10	Roseburg	AA7GC 503/672-7564	w/i OK
Mar. 13	Sunnyvale	408/255-9000 24-hr.	w/i only	Pennsylvania			
Mar. 27	Vacaville	Irene, KK6XB 707/446-8376	w/i only	Mar. 6	Erie	W3CG 814/665-9124	w/i
Mar. 13	Willits	Don, WA6ACX 707/459-3980	w/i only	Mar. 4	Philadelphia	ND3Q 215/482-0386	p/r pref.
Mar. 9	Yuba City	916/673-0868	w/i OK	Rhode Island			
Colorado				Mar. 11	Providence	NN1U 401/231-9156	w/i OK
Mar. 8	Boulder	Barbara, N0BWS	p/r pref.;	Mar. 27	Slatersville	W1YRC 401/333-2129	w/i OK
		303/530-2903	w/i OK	South Carolina			
Mar. 30	Denver	Glenn, W0IJR 303/360-7293,	w/i OK	Mar. 20	Charleston	Pat, AC4IH 803/553-3871	w/i
		24-hr. voicemail	w/i OK	Mar. 6	Greenville	John, ND4N 803/288-0136	w/i OK
Mar. 20	Westminster	AA0BZ 303/421-2795	p/r	Mar. 20	Sumter	Dan, WB5SGH 803/775-9106	w/i
Connecticut				South Dakota			
Mar. 20	Gales Ferry	Linda, WM1Q 203/449-0732	w/i only	Mar. 13	Rapid City	NU0F 605/348-6564	p/r 30 days prior; w/i OK
Mar. 28	Milford	NB1M 203/933-5125;	w/i	Tennessee			
		WA1YQE 203/874-1014		Mar. 26	Carter County	Joe, K4BKI 615/543-4022	w/i
Florida				Mar. 1	Chattanooga	Alan, WA4QCH 404/866-1200	w/i
Mar. 20	Melbourne	WB9IVR 407/724-6183	w/i OK	Mar. 27	Greeneville	Jack, K4EPC 615/638-7056	w/i OK
Georgia				Mar. 20	Henry County	Mackie, AA4YF 901/247-5489	w/i OK
Mar. 13	Augusta	Jim, N4JA 404/790-7802	w/i	Mar. 14	Jasper	Charles, KD4XX 615/942-5116	p/r pref.
Idaho				Mar. 20	Knoxville	Ray, N4BAQ 615/688-7771	p/r pref.
Mar. 13	Boise	Lem Allen, W7JMH		Mar. 8	McMinn County	Evan, WA4PNI 615/263-9300	w/i OK
		208/343-9153	w/i	Mar. 27	Memphis	Win Guin, W2GLJ	
Illinois						901/754-4552	w/i OK
Mar. 13	Bloomington	Ken, NX9M 309/662-3910	w/i OK	Mar. 4	Morristown	Roy, KF4CB 615/586-3491	w/i OK
Mar. 20	Loves Park	Paul, WB9HGZ 815/987-6754	p/r; w/i	Mar. 13	Roane County	Richard, AA4KS 615/354-4281	w/i OK
Mar. 7	Paris	WO8X 217/463-2213	p/r; w/i	Texas			
Indiana				Mar. 9	Houston	ND5F 713/464-9044	p/r pref.
Mar. 9	New Carlisle	219/654-3007; or KK9T		Mar. 13	Houston	Jim, KB5WAM 713/486-2032	
		219/654-8084	p/r	Mar. 13	Midland	KT5G 915/694-9450	w/i OK
Kentucky				Mar. 27	San Antonio	K5JWK 512/657-1549	w/i
Mar. 20	Louisville	Otis, AA4HJ 502/969-7332	w/i only	Virginia			
Mar. 13	Middlesboro	Andrew, WB8WEZ		Mar. 6	South Peninsula	Ed, W4RTZ 804/898-8031	w/i only
		606/248-0046	w/i OK	Mar. 26	Stafford	David, K9MX 703/659-6241;	
						Jim, N4LZJ 703/786-8012	w/i
Maryland				Washington			
Mar. 7	Landover	Freddie, NG3G 202/546-9348		Mar. 27	Bremerton	Dave, AA7IA 206/698-9205	w/i
Mar. 19	Laurel	WB3GXW 301/572-5124 after	p/r pref.	Wisconsin			
		6 p.m.		Mar. 20	Appleton	W9MDP 414/832-6279	w/i
Massachusetts				Arizona			
Mar. 1	Cambridge	Bob, N1KDA 617/593-1955		Mar. 6	Tucson	Joe, K7OPX 602/886-7217	w/i only
Michigan				Arkansas			
Mar. 13	Dearborn	Stan, K8SB 313/676-6248		Mar. 13	West Memphis	Gene, AB5BL 501/739-4029	w/i OK

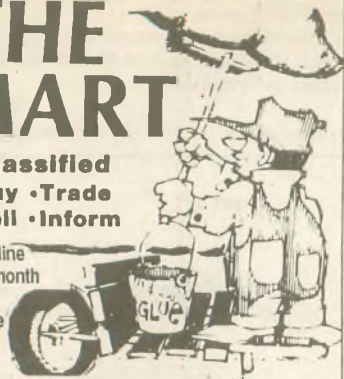
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Lincoln County, Oregon, leads the nation in upgrades

CHARLIE SMITH, N7FSN and TAMI BURROUGHS, KB7HEK

In a recent month-end report of upgrade testing in all 50 states, only seven hams had upgraded to Extra Class. Compare that with the upgrade reports in Lincoln County, Oregon, the past three months: *eight* Lincoln County Amateur Radio Club members have upgraded to Extra Class.

Several of the new LCARC Extra Class licensees had studied all or part time under instructor Bill Eidenschink, W7IHO. The word is going around that, if you are short on math, Bill is the Elmer you need.

Bill teaches his students to work such problems as rectangular and polar coordinates, phase angles and time constants without the use of a scientific calculator. Only a simple arithmetical calculator is recommended. Bill makes the heavy stuff easy—so easy that some of his students can work phase angles in their heads. He reduces an intimidating math formula to an adventure that the mathematically deficient can easily handle.

Big, good-natured and seemingly easy going, Bill will suddenly turn to the chalkboard to illustrate a complex subject with diagrams and mathematical projections—a rapid-fire chalk-talk that can glaze the eyes of his students. Then, quickly erasing his formulary hieroglyphics, he turns and smiles, "But you don't have to do it that way. There is an easier way. Here's how..." He then proceeds to teach them the "easy way" he has devised.



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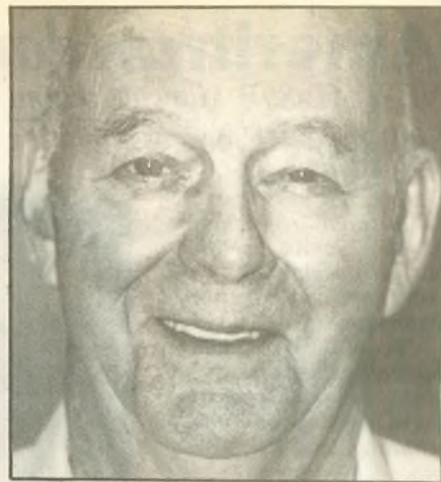
In addition to making Advanced and Extra Class math understandable and user-friendly, Bill teaches all grades how to remember the answers to obtuse and complex questions in the test (upgrade) manual. He demonstrates learning shortcuts through association, doggerel phrases and acronyms composed of answers to questions. He teaches his students how to study and how to comprehend.

Bill is battling cancer but he has no plans to let up instructing fellow hams on how to upgrade. In the past year he has brought more than 30 in all license grades across the finish line.

Bill spent four years during WWII as Chief Mate in the Merchant Marines. Later, he studied electronics at Edison Tech in Seattle. For the past year he has been at Oregon Community College in Lincoln City, teaching Amateur Radio courses in all license grades. There are no registration fees. Bill volunteers his time.

Lincoln County ARC, which has more than 100 dues-paying members, is indeed fortunate to have a dedicated, know-how instructor like Bill Eidenschink, W7IHO. His teaching fame is spreading and he has been drawing students from Portland, Salem, Eugene and other outlying Oregon communities.

If you are serious about upgrading,



Bill Eidenschink, W7IHO, is an Elmer gaining fame in Oregon.

especially to Advanced or Extra Class, Bill, W7IHO, is your Elmer. Bill works with W5YI testing materials, memory aids and no calculators; he says that he can teach you rectangular and polar coordinate systems without the use of a calculator. He is willing to set up special weekend, four-hour cram courses with the intentions of teaching the information to those interested in setting up in their own area to teach classes with the knowledge gained from Bill. You only need to show up with a pad, pencil, tape recorder, video recorder or notebook computer (whichever tool works for you), and it's free. Local amateurs can make arrangements with him by calling 503/994-5660. WR

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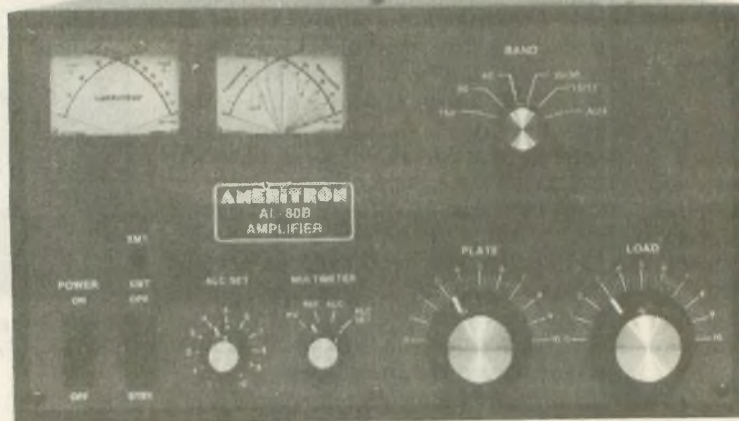
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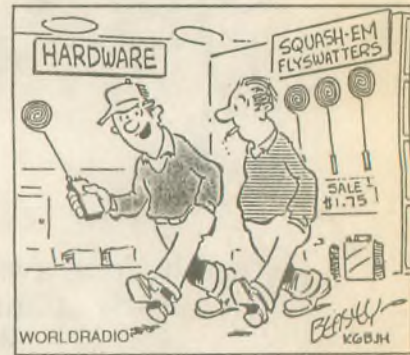
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